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THE COST-EFFECTIVENESS OF SEQUENTIAL USE OF ANTI-TUMOR NECROSIS FACTOR AGENTS IN THE TREATMENT OF RHEUMATOID ARTHRITIS

Taylor MJ[1], Conway P[2], Lebmeier M[3], Ganderton M[1]
[1]University of York, York, UK, [2]Wyeth Europa, Berkshire, UK, [3]Wyeth Pharmaceuticals, Maidenhead, UK

OBJECTIVES: Previous studies have established that etanercept is cost-effective when used for the treatment of rheumatoid arthritis (RA) following the failure of 2 DMARD therapies. This analysis explores the use of etanercept after the failure of a previous anti-tumor necrosis factor (anti-TNF) agent. **METHODS:** A sequential Markov model was developed to predict the costs and health outcomes associated with different treatments for patients with RA in the UK. The model estimated the cost-effectiveness of sequential anti-TNF therapies when compared against a sequence containing no anti-TNF treatments (i.e. solely DMARD therapies). In a separate analysis, etanercept was compared against rituximab after the failure of a previous anti-TNF. For each treatment, the initial, medium-term and long-term effects on the Health Assessment Questionnaire (HAQ) score were calculated. HAQ scores at each time period determined each patient's utility (QALYs), resource use and mortality. Effectiveness data (HAQ progression, serious adverse events and mortality) were derived from the results from trials and published literature. Various scenarios were assessed using different interpretations of effectiveness data for sequential use of anti-TNFs. Utility scores were converted from HAQ data using the EQ-5D. Cost data were drawn from established national databases. **RESULTS:** Patients who received two successive anti-TNF therapies gained between 0.63 (when the initial HAQ change for etanercept was assumed to be 0.51) and 0.76 (when the initial HAQ change was assumed to be 0.40) additional QALYs compared to the DMARD-only cohort. The incremental cost varied between £11,300 and £13,600, resulting in the incremental cost-effectiveness ratios (ICER) ranging between £17,916 and £20,479. When etanercept was compared against rituximab after the failure of another anti-TNF, the ICER ranged between £7290 and £9031. **CONCLUSIONS:** This study has demonstrated that etanercept is a cost-effective treatment option for patients with rheumatoid arthritis, even when it is used sequentially with other anti-TNF agents.

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COST-EFFECTIVENESS OF RITUXIMAB (MABTHERA) COMPARED WITH TNF INHIBITORS FOR THE TREATMENT OF RHEUMATOID ARTHRITIS (RA) IN POLAND

Plisko R[1], Krzystek J[1], Rys P[1], Russel-Szymczyk M[2], Szkultecka-Debek M[2], Szamotulska K[3]
[1]HTA Consulting, Krakow, Poland, [2]Roche Polska, Warsaw, Poland, [3]National Research Institute of Mother and Child, Warsaw, Poland

OBJECTIVES: To evaluate the cost-effectiveness of rituximab compared with TNF inhibitors for the treatment of RA patients following the failure of 2 DMARDs and 1 TNF inhibitor in Polish setting. **METHODS:** A cost-utility approach was adopted, evaluating the total direct National Health Fund costs and QALYs. Baseline patient characteristics were based on the REFLEX and DANCER phase III trials. A micro-simulation model of 50 000 RA patients estimated lifetime Health Assessment Questionnaire (HAQ) progression, QALYs and direct costs. The starting time-point of the model was the failure of two previous DMARDs. Two treatment options were compared. Upon treatment failure it was assumed patients would follow an identical lifetime treatment strategy consisting of: TRDM—infliximab, rituximab, leflunomide and palliative care or TTDM—infliximab, etanercept, leflunomide and palliative care. Rituximab was assumed to be administered every 9 months to responding patients. ACR response rates were taken from the phase III RCTs and adjusted for placebo response. The initial HAQ drop by ACR category and longterm HAQ progression ware taken from the published literature. **RESULTS:** Annual drug acquisition and administration costs were lower for TRDM compared to TTDM. Discounted total lifetime direct NHF costs were 216,460 pln and 233,734 pln for TRDM and TTDM groups respectively. Total QALYs were 29,952 and 25,854 for TRDM and TTDM, respectively. TRDM is a dominant therapy over TTDM. **CONCLUSIONS:** The model predicted that TRDM dominated options for RA patients who have failed DMARD therapy, with higher estimated QALYs and lower NHF costs. The results will be different when different TNF inhibitors will be taken into account.

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COST-EFFECTIVENESS ANALYSIS OF RHBMP-2 IN THE TREATMENT OF OPEN TIBIA FRACTURES IN THE NETHERLANDS

Van Genugten M[1], Chhabra A[2], Alt V[3]
[1]Medtronic Trading NL B.V, Heerlen, The Netherlands, [2]Medtronic Europe SA, Tolochenaz, Switzerland, [3]University Hospital Giessen-Marburg , Brackenheim, Germany

OBJECTIVES: Recombinant human bone morphogenetic protein (rhBMP2) is a novel biologic therapy that promotes bone growth at the fracture site. We analyzed the cost-effectiveness of rhBMP-2 in open tibia fractures in The Netherlands. **METHODS:** An economic model comparing rhBMP-2 plus standard of care -consisting of soft tissue management and intramedullary nailing- with standard of care alone. Clinical data were drawn from the BMP-2 Evaluation for Surgery in Tibial Trauma (BESTT) trial and treatment costs were taken from Dutch national sources. Total costs were calculated as direct plus indirect costs. Direct costs consisted of drug costs and cost for complications. Indirect costs were calculated as lost productivity times average annual salaries. Utility weights were assigned to different grades (Gustillo IIIA and B) of open tibia fractures to estimate the difference in quality-adjusted-life-expectancy. We performed the analysis from payer's and societal perspectives for a one-year time-horizon. **RESULTS:** In The Netherlands, use of rhBMP-2 for grade III open tibia fractures resulted in an incremental cost of €1,935 per patient and in incremental cost-effectiveness ratio (ICER) of €27,587/QALY. When indirect costs were included, rhBMP-2 treatment for grade III open tibia fractures resulted in an incremental cost of €400 per patient and an ICER of €5,708/QALY. **CONCLUSIONS:** From a payer's perspective, rhBMP-2 is a cost-effective treatment option in grade III open tibia fractures for the Dutch health care systems.

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COST CONSEQUENCE ANALYSIS OF RITUXIMAB TREATMENT FOR RHEUMATOID ARTHRITIS IN ISRAEL

Hammerman A[1], Klang SH[1], Liebermann N[1], Birenboim-Gal T[2], Shuali A[2], Kfir M[2]
[1]Clalit Health Services, Tel-Aviv, Israel, [2]Roche Pharmaceuticals (Israel), Petach-Tikva, Israel

OBJECTIVES: The aim of this analysis was to evaluate cost consequences of rituximab (RTX) treatment in rheumatoid arthritis (RA) from the payer perspective, in a phase IV open-label study conducted by Clalit Health Services, the largest Israeli HMO, in collaboration with Roche Pharmaceuticals. **METHODS:** Patients with prior inadequate response to disease-