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THE HEALTH AND ECONOMIC CONSEQUENCES OF DELAY IN STARTING DISEASE-MODIFYING ANTIRHEUMATIC DRUGS (DMARDS) IN RHEUMATOID ARTHRITIS

Van doornum S[1], Roberts L[2], Reed MD[3], Liew D[1]
[1]The University of Melbourne, Parkville, Vic, Australia, [2]James Cook University, Douglas, Queensland, Australia, [3]Sir Charles Gairdiner Hospital, Nedlands, Western Australi, Australia

OBJECTIVES: Several international studies suggest that the time between symptom onset and DMARD initiation in RA patients is longer than is considered optimal. We sought to assess the health economic impact of this delay in an Australian context. **METHODS:** The delay in DMARD initiation was estimated from a 2005 study of 96 Australian RA patients referred to one public and four private rheumatology practices. RA-associated utilities and costs were sourced from published data. Patients not taking and taking DMARD therapy were assumed to have utilities of 0.443 and 0.543, respectively. The annual direct costs of RA, excluding DMARDs, was AUD $3780, and of DMARD therapy was $2658. It was conservatively assumed that DMARD therapy did not reduce non-DMARD RA costs. **RESULTS:** In the 2005 study, the mean time from symptom onset to initiation of DMARD therapy was 1.48 years. Over this time a mean of 0.65 QALYs would have been lived per patient and $5579 of direct health care costs incurred. Had DMARDs been commenced at symptom onset, 0.80 QALYs would have been lived per patient, and $9503 of direct health care costs incurred. Hence early initiation of DMARDs would have saved 0.15 QALYs at a cost of $3924 per person, equating to an incremental cost-effectiveness ratio (ICER) of $26,583 per QALY saved. An additional $3400 could be spent per patient to reduce the time to DMARD initiation before the ICER breached the arbitrary cut-off of $50,000 per QALY saved. Our analysis was conservative in it did not consider the long-term health and cost savings associated with avoidance of permanent joint damage. **CONCLUSIONS:** The considerable delay in the initiation of DMARD therapy among patients with RA leads to significant health loss. Reducing the time to initiation of DMARDs represents a cost-effective means of reducing the burden of RA.

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TOCILIZUMAB IN METHOTREXATE-INTOLERANT OR CONTRAINDICATED PATIENTS – A COST-UTILITY MODEL FOR THE UK

Harland D[1], Gibbons C[1], Diamantopoulos A[2], Pang H[1], Huertas C[1], Dejonckheere F[3]
[1]Roche Products Limited, Welwyn Garden City, UK, [2]Symmetron Limited, London, UK, [3]F. Hoffmann-La Roche Ltd., Basel, Switzerland

OBJECTIVES: To evaluate the cost-effectiveness of monotherapy TCZ in DMARD-IR patients intolerant of or contraindicated to MTX in the United Kingdom (UK). **METHODS:** An economic model was developed to reflect the health care system and treatment pathway in the UK. In the model, disease severity is represented by the health assessment questionnaire (HAQ) score; a surrogate health outcome which can be translated to utility scores and ultimately quality adjusted life years (QALYs). The model captures the progression of the HAQ score for each individual patient. Benefits were expressed as QALYs. Costs were calculated from a National Health Service and Personal Social Services perspective. The analysis calculated incremental costs and benefits associated with the addition of TCZ in first line to the standard care pathway involving certolizumab pegol, etanercept and adalimumab. Efficacy data for comparator biologic monotherapies were available from monotherapy trials of adalimumab (van de Putte et al 2004), certolizumab pegol (Fleischmann et al 2009), and etanercept (Moreland et al 1999). TCZ efficacy was informed by results from the ADACTA study (Gabay et al 2012), a new head-to-head superiority trial of TCZ and adalimumab monotherapy in RA. The economic model used inputs derived through a mixed treatment comparison that indirectly compared TCZ monotherapy with the standard of care biologic monotherapy treatments used in the UK (Roche data on file). **RESULTS:** Base case results estimated incremental costs of approximately £20,230 and incremental QALYs of 0.88. The incremental cost-effectiveness ratio (ICER) was £22,950 per QALY gained. A probabilistic sensitivity analysis produced a very similar ICER of £23,200 per QALY gained. **CONCLUSIONS:** The results of this analysis suggest that TCZ monotherapy represents an efficacious and cost-effective addition to the current standard of care in the UK, for treating RA patients who are intolerant of or contraindicated to MTX.

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COST-EFFECTIVENESS ANALYSIS OF ETANERCEPT AND INFLIXIMAB IN THE TREATMENT OF RHEUMATOID ARTHRITIS (RA) IN SPAIN

Guijarro P[1], Crespo C[2], Brosa M[2]
[1]Pfizer Spain, Alcobendas, Madrid, Spain, [2]Oblikue Consulting, Barcelona, Spain

OBJECTIVES: Etanercept and infliximab are two mostly used biologic disease-modifying anti-rheumatic drugs (DMARDs) for the management of rheumatoid arthritis (RA). The aim of this study was to compare the clinical and economic consequences of using either etanercept or infliximab in the management of RA in Spain. **METHODS:** A decision analytic model was built to combine trial-based outcomes and costs of compared options. Efficacy data was obtained from an overview of Cochrane reviews. Newer therapies in the analysis, other than etanercept and infliximab, were not included because of methodological differences and patients characteristics of their corresponding clinical trials. Different approaches and data sources were used to estimate QALYs from trial-based ACR outcomes and local Spanish health care costs were used to model the economic consequences of RA treatment for a 1-year period. Probabilistic and univariate sensitivity analyses were performed to test different dose titration, vial waste assumptions and patient weight. **RESULTS:** Etanercept was associated to 0.033 - 0.042 QALYs gained depending on different sources to convert ACR outcomes to utilities. Model results showed that etanercept was a dominant option (cost savings of 573 € - 10,004 € depending on patients weight) with respect to infliximab in all studied weight scenarios without dose titration when vial wasting was considered. The results of the sensitivity analyses showed that when no vial wasting was considered, etanercept was a dominant option in patients weighing ≥ 90 Kg, and an overall cost-effective alternative for all other patients weights. When considering doses used in daily clinical practice with infliximab dose titration, etanercept was a dominant option in all patient weight groups. **CONCLUSIONS:** The results of this study show that etanercept may improve RA outcomes at no extra cost under different circumstances or with an extra cost yielding to iCERs below commonly accepted thresholds in most scenarios.

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INDIRECT COSTS OF RHEUMATOID ARTHRITIS IN SERBIA RELATED TO WORK ABSENTEEISM, MEDICAL WELFARE AND REHABILITATION COSTS

Damjanov N[1], Vojinovic J[2]
[1]School of Medicine, University of Belgrade, Belgrade, Serbia and Montenegro, [2]School of Medicine, University of Nis, Nis, Serbia and Montenegro

OBJECTIVES: To estimate indirect costs of RA in Serbia, related to work absenteeism, medical welfare and rehabilitation in specialized centers. **METHODS:** Representative group of 90 general practitioners (GPs) collected the data in period 01/01/2011-31/12/2011 and from records evaluated their RA patients. They collected the data on frequency of RA patients in their practice in 2011, their working ability and absenteeism, diagnostic procedures, treatment and usage of specialized rehabilitation and different kinds of government provided welfares. Absenteeism costs were calculated through mean of average salary in Serbia (as average cost of working day lost), rehabilitation (as average cost of one day treatment in outpatient or hospitalized specialized rehabilitation center) and medical welfare costs were calculated through official price list of respective public funds for these services. The costs were extrapolated to official demographic population data of Serbia. **RESULTS:** Based on this study, frequencies of employed, unemployed and retired RA patients in Serbia are 23% (8,089 patients), 22% (7,737 patients), and 55% (19,344 patients) out of 35,168 respectively. Among small number of employed patients, average duration of work absenteeism due to RA is 33.7 days, and cumulative annual work absenteeism equals 272,599 days, with costs of 7.77 mio EUR. Medical welfare is used by 13% (4,572) RA patients, with costs of 7.3 mio. EUR. Rehabilitation in specialized centers at least once per year is used by 48% (16,882) RA patients, average treatment lasts for 21 days, with costs of 10.03 mio EUR. **CONCLUSIONS:** Unemployment among RA patients is very high in Serbia while indirect costs related to work absenteeism, rehabilitation in specialized centers and medical welfare usage in Serbia are high (25 mio EUR), as well. Further detailed analyses of RA patients economic burden is necessary in order to improve treatment approach and lower state expenses.

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WORK PRODUCTIVITY AND PRODUCTIVITY COSTS OF PATIENTS WITH RHEUMATOID ARTHRITIS, ANKYLOSING SPONDYLITIS AND PSORIASIS IN THE CZECH REPUBLIC

Kruntoradova K[1], Klimes J[2], Dolezal T[2], Vocelka M[2], Petrikova A[3]
[1]Czech Technical University in Prague, Faculty of Biomedical Engineering, Kladno, Czech Republic, [2]Institute of Health Economics and Technology Assessment, Prague, Czech Republic, [3]VFU Brno, Brno, Czech Republic

OBJECTIVES: To assess and compare the impact of rheumatoid arthritis (RA), ankylosing spondylitis (AS) and psoriasis (Ps) on work productivity, to estimate productivity costs in the Czech Republic and to evaluate the effect of functional status and disease activity on productivity costs. **METHODS:** According to Work Productivity and Activity Impairment Questionnaire was assessed productivity loss of patients with RA (n=77), AS (n=230), Ps (n=93) in productive age. Patient-reported outcome (PRO) (HAQ, BASDAI) and clinical parameters (DAS28, BSA, PASI) were also included. The interdependence among PROs and overall work productivity loss or productivity costs were described by Spearman's rank correlation coefficient. Productivity costs were calculated by friction cost approach. **RESULTS:** Average patients age was 47.1 years (22-62) and average disease duration 15.7 years. Patients with RA revealed higher HAQ (1.22) compared to AS patients (1.00). Mean DAS28 of RA patients was 5.58 and mean BASDAI of AS patients was 4.43. Mean BSA and PASI for Ps patients were 21.09% and 12.85. The percentage of psoriatic arthritis (Ps patients) was 24.7%. We did not reported significant difference of WPAI among all diagnoses. Absenteeism for patients with RA, AS and Ps was 8.39%, 10.79% and 14.90%. Presenteeism was 40.26% for patients with RA, which was greater by 7.29% and 5.83% compared to AS and Ps patients. Patients with AS, RA and Ps reported overall work productivity loss of 40.85%, 42.92% and 42.82%, respectively. Activity impairments were approximately 50.00%. Average annual productivity costs per one patient with RA, AS and Ps were €1913, €1809 and €1908, respectively. Productivity costs strongly correlated with PROs, whereas correlations with clinical parameters were weak. **CONCLUSIONS:** The productivity loss was almost the same within all three diagnoses. HAQ, BASDAI in contrast to DAS28, BSA/PASI influenced productivity costs. Average annual productivity costs per each patient were almost €2000.

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DRUG USE PROFILE IN A RHEUMATOID ARTHRITIS PATIENT COHORT: A BRAZILIAN HEALTH MANAGEMENT ORGANIZATION EXPERIENCE

Cantanheda CRDO, Simas HS, Dias QCP
Unimed-Rio Cooperativa de Trabalho Médico, Rio de Janeiro, Rio de Janeiro, BrazilRheumatoid arthritis (RA) is a systemic autoimmune disease characterized by synovitis and joint erosions, which affects around 1% of adult population worldwide. In Brazil, patients with moderate to severe RA can be treated with biologic DMARDs infliximab, etanercept, adalimumab, abatacept or tocilizumab. Patients who responded inadequately to previously biologic DMARDs can be treated with rituximab.