ECONOMIC EVALUATION OF BIOLOGIC THERAPIES FOR MODERATE TO SEVERE PSORIASIS: ETANERCEPT COMPARED TO ADALIMUMAB AND INFlixIMAB

Willemsen M1, Lehmann M2, Conway P3
1IMS Health, London, UK, 2Wyeth Pharmaceuticals, Maidenhead, UK, 3Wyeth Europa, Berkshire, UK

OBJECTIVES: To assess the cost-effectiveness of flexible dosing with etanercept containing co-payments, adalimumab or infliximab in patients with severe psoriasis.

METHODS: An economic model was constructed to estimate the incremental cost per quality adjusted life year for each therapy compared with no systemic treatment (NST). Patients met UK criteria for biologic treatment, which require both active disease and extra-articular features. The model estimated incremental cost per treatment failure avoided.

RESULTS:
- The model estimated incremental cost-effectiveness ratios (ICER) of each therapy compared with no systemic treatment (NST) to be: £12,600 (95% CI: £10,131, £14,066) for etanercept flexible dosing; £17,975 (£17,779, £31,106) for continuous adalimumab; and £44,377 (£44,038, £73,815) for continuous infliximab. The ICER for etanercept was sensitive to the frequency and duration of drug free intervals in these patients but was below the ICER for continuous infliximab.
- The model found flexible dosing with etanercept to be more cost-effective than continuous therapy, as it allows control to be maintained at lower drug cost. This finding is consistent with a previous publication (Sitaro 2008), but has now been confirmed with drug utilisation data from UK practice.

PSS20
COST-EFFECTIVENESS OF A NEW TOPICAL PRESERVATIVE-FREE OPHTHALMIC ANTIBIOTIC TREATMENT WITH MOXIFLOXACIN IN THE NETHERLANDS

Verlouw Y1, Robert J2, Laframa A3, Nuiten M4
1ALCON, Puurs, Belgium, 2CBMKA-EVAL, BORUJ LA REINE, France, 3Cemica, Bg la reine, Hauts de Seine, France, 4Ars AccessusMedicusErrsnois University, Rotterdam, The Netherlands

OBJECTIVES: This study aimed to estimate the cost per treatment failure avoided of topical preservative-free moxifloxacin (MOXI) as compared with ofloxacin (OFLOX), marketed as preserved Trafloxal and preservative free Trafloxal E.D.O.in the treatment of acute infectious conjunctivitis in The Netherlands (NL). METHODS: A survey among GPs and Ophthalmologists (OPH) collected health care resources (HCU) used to manage acute bacterial conjunctivitis. Cost of health care resources were obtained from National databases; treatment failure rates were estimated from a meta-analysis of randomized controlled trials (RCT) investigating MOXI. A decision tree model in TreeAge was populated to define the cost per treatment failure avoided using MOXI instead of OFLOX. OFLOX treatment failure rate was obtained from a trial directly comparing OFLOX with MOXI. Probabilistic sensitivity analysis was performed investigating the range of HCU used in clinical practice by different OPH and investigating the uncertainty around treatment failures reduction. RESULTS: The average estimated incremental cost per treatment failure avoided by a GP was £53.47 and £21.35 by an OPH (range £16.959.579 to £279.42). The treatment failure rate for MOXI was 2.9% [95% CI 1.4%, 4.3%] versus 7.6% for OFLOX. The price for MOXI taken in the model was £4.04, the maximum reimbursement of current preservative free antibiotic treatments in NL. A weighted current average price of Trafloxal (£19.843 units) and Trafloxal E.D.O.(15,554 units) was £3.74. With a failure rate less than half that for OFLOX, and assuming a willingness to pay (WTP) of £100 per treatment failure avoided (based on the WTP for avoiding allergic reactions), in 99% of the simulations MOXI is cost-effective. CONCLUSIONS: Use of topical moxifloxacin instead of ofloxacin avoids treatment failures. Moxifloxacin, with a price of 14.04£ is a cost-effective alternative to ofloxacin given a willingness to pay of £100 per treatment failure avoided.

PSS21
COST-EFFECTIVENESS ANALYSIS OF IMIQIUMOD VERSUS NO TREATMENT IN ACTINIC KERATOSIS

Walczyk J1, Negus G2, Dybek-Karpisz J1, Kluc K3, Labak M4, Pawlik D5
1Acuta Institute, Cracow, Poland

OBJECTIVES: The purpose was to conduct a cost-effectiveness analysis (CEA) of imiquimod therapy compared to no treatment in patients with actinic keratoses (AKs) in Poland. METHODS: The analysis was based on a decision model regarding clinical effects of imiquimod therapy in comparison to placebo (vehicle cream), derived from randomized clinical trials. The population was defined as adult patients with actinic keratoses, without hypotrophy and keratosus, with typical course (localisation on head skin), competent immune system of patient, when another treatment is contraindicated or inappropriate. Complete clearance was assessed as health outcome. Direct medical costs of the analyzed therapies were estimated from the perspective of both payers in Poland (National Health Fund and patient). Costs of medication and clinical visits were included. Time horizon of the analysis was 20 weeks. Treatment was assumed as once a day 3x/week, one or two 4-week cycles. Costs and effects were discounted. RESULTS: Ratio of complete clearance was 0.620 for patients treated with imiquimod and 0.080 for patients taking placebo. Total costs of imiquimod therapy were estimated at 602.26 PLN, while costs of no treatment were 128.26 PLN. Incremental cost-effectiveness ratio (ICER) for the comparison of imiquimod versus no treatment was calculated as 878 PLN per gained complete clearance. CONCLUSIONS: Imiquimod is more effective and more expensive than no treatment in patients with actinic keratoses. ICER value is below the acceptable threshold, therefore imiquimod therapy is considered as cost-effective treatment in Poland.

PSS22
COST EFFECTIVENESS STUDY OF COMPLICATED SKIN AND SKIN-STRUCTURE INFECTION TREATMENT IN MEXICO

Baca-Muro V1, Soria-Cedillo P2, Chélala V3, García-Conterreas P4
1Resonance Consulting, Puebla, Mexico, 2Corina Ojo de Agua, Mexico, 3Novartis Farmacéutica México, Mexico D.F., Mexico, 4Instituto Mexicano de Seguro Social, Mexico D.F., Mexico

OBJECTIVES: To determine the most cost-effective intravenous antibiotic treatment for composites, treatments. In laceration infections (CSNI) in public health care institutions in Mexico. METHODS: A cost-effectiveness study with institutional perspective was conducted comparing the use of either i.v. Daptomycin (DAP), i.v. Vancomycin (VAN) or i.v. Linezolid (LIN) as first-line and/or second-line antibiotic therapy. Data was reviewed which included the most recent published articles, measuring clinical improvement, length of stay at hospital services and adverse events due to the use of any of three alternatives. A decision tree with Bayesian approach was designed to simulate the use of resources based on patient’s prognosis considering clinical success as the best health state, reached in either short hospital stay or long hospital stay, and a therapeutic failure of first-line antibiotic therapy (DAP, VAN or LIN) which caused the use of a second-line antibiotic therapy (DAP or LIN depending on first election). Costs calculation considered hospital stay, concomitant medication and selected antibiotic treatment. Results were evaluated with incremental analysis and one-way sensitivity analysis of the most uncertain variables.

RESULTS: The use of DAP as first-line therapy results in the lowest cost per clinical success (CS) (DAP: US$1,405.00/CS; VAN: US$3,550.00/CS; LIN: US$3,870.00/CS). In case of the therapeutic failure of DAP, the use of LIN as second-line therapy resulted in the lowest total cost per clinical success (DAP-LIN: US$3,255.00/CS; VAN-DAP: US$3,310.00/CS; VAN-LIN: US$3,423.00), reaching 98% of CS. The sensitivity analysis varying clinical success rates of every evaluated alternative confirmed the robustness of base study. CONCLUSIONS: Daptomycin is the most cost-effective alternative in the treatment of CSNI when used as first-line antibiotic therapy since its use reduces the length of hospital stay reducing expenses of public health system budget in Mexico.
more effective and less costly than latanoprost (25.68% vs. 24.76% IOP reduction rate, $603.08 vs. $615.33 expected cost). Thus tafluprost was shown to be dominant compared with latanoprost. The results of sensitivity analysis revealed stable across most of the included parameters. CONCLUSIONS: According to this study, tafluprost should be the better clinical outcome for one year than latanoprost. In addition, first-line treatment of tafluprost is a more cost-effective strategy associated with POAG or ocular hypertension compared with latanoprost.

**PS25**

**COST-EFFECTIVENESS OF BIOLOGIC TREATMENTS FOR MODERATE TO SEVERE PSORIASIS**

Carretéro G1, Marinoa JC2, Notaroc J3, Silvestre J4, López-Belmonte JC1, Giménez F5, Sabater F5, Fanaya F1

1Hospital Dr. Negrín, Las Palmas de Gran Canaria, Las Palmas de Gr, Spain, 2Hospital Reina Sofía, Córdoba, Andalucía, Spain, 3Hospital Universitario de Bellvitge, Hospitalitat de Llobregat, Barcelona, Spain, 4Hospital General de Alicante, Alicante, Alicante, Spain, 5Scheing Pough S.A, Alcobendas, Spain, 6Complejo Hospitalario Universitario Juan Canalejo, A Coruña, A Coruña, Spain.

OBJECTIVES: The objective of this study was to evaluate the cost-effectiveness (CE) of biologic drugs for the treatment of moderate to severe psoriasis. METHODS: A CE model was developed to estimate the incremental cost per quality adjusted life-year (QALY) associated with supportive care and each biologic for the treatment of moderate to severe psoriasis (defined by 4th quartile DLQI for purposes of calculating utilities and expected costs) when compared using the Psoriasis Area Severity Index (PASI) at 12 weeks, 26 weeks and 52 weeks, and 90 response rates at 10 weeks for infliximab and 12 weeks for the others, which were supported by clinical trials and an expert panel. Direct health care costs and utilities values were also included in the analysis. The CE analysis was conducted by estimating the cost of expected costs and health effects per unit of time for the first treatment, incorporating both patients who ‘respond’ and continue treatment and those who do not ‘respond’ and stop treatment. All data was reviewed by a focus group in order to adapt the model to the Spanish clinical practice RESULTS: In the base case analysis infliximab is associated with mean expected costs of $5909 and mean expected QALYs of 0.216. Results were $2947 and 0.100 QALYs for etanercept 25 mg, $5433 and 0.173 QALYs for adalimumab and $7,907 and 0.151 QALYs for etanercept 30 mg. The incremental cost-effectiveness ratio (ICER) was $27,320 for infliximab, $39,430 for etanercept, $31,417 for adalimumab and $62,367 for etanercept 30 mg. CONCLUSIONS: First Infliximab 5 mg/kg (0.2,6 then every 3 weeks) and then etanercept 25 mg administered twice a week are the most cost-effective alternatives from the Spanish National Health System perspective for the treatment of moderate to severe psoriasis, both below the $30,000/QALY threshold commonly accepted in Spain for the introduction of new technologies.

**PS26**

**EXPECTED VALUE OF PARTIAL PERFECT INFORMATION IN A MARKOV MODEL OF INFliximAB AND ETANERCEPT IN THE TREATMENT OF MODERATE TO SEVERE PLAQUE TYPE PSORIASIS**

Visser MJ

Erasmus MC, Rotterdam, The Netherlands.

OBJECTIVES: The objective of the ‘piggy-back’ trial is to examine the cost-effectiveness of infliximab compared to etanercept in patients with moderate to severe plaque psoriasis or psoriasis vulgaris. Before starting the cost-effectiveness study it is useful to know what to measure and where to invest or aim for. The objective of this paper is to not only determine the value of perfect information (EVP) with an ultimate goal of estimating the partial EVPs (EVPPIs) to make a prediction about the value of obtaining further information, for all parameters and a partial set of parameters. METHODS: Analysis was conducted using a Markov model for patients with moderate to severe plaque psoriasis. For estimating partial EVPs (EVPPIs) a Monte Carlo simulation (MCS) method was used. Transition probabilities were calculated, based on published evidence, expert opinion, and demographic data. Outcome expected were total societal costs, expected QALY’s and clinical effectiveness. The analysis was performed from a societal perspective in The Netherlands. The outcome of partial EVP was split into costs, utilities, success rates and dropout rates. RESULTS: The cost-effectiveness acceptability curve (CEAC) indicates a high decision uncertainty. The CEAC and EVP also show infliximab needs a higher willingness to pay. The results were determined by discounting costs by 5% over 10 years. The incremental cost-effectiveness ratio (ICER) was $27,320 for infliximab, $39,430 for etanercept, $31,417 for adalimumab and $62,367 for etanercept 30 mg. CONCLUSIONS: First Infliximab 5 mg/kg (0.2, 6 then every 3 weeks) and then etanercept 25 mg administered twice a week are the most cost-effective alternatives from the Spanish National Health System perspective for the treatment of moderate to severe psoriasis, both below the $30,000/QALY threshold commonly accepted in Spain for the introduction of new technologies.

**PS27**

**A COST-UTILITY ANALYSIS OF ETANERCEPT FOR THE TREATMENT OF MODERATE-TO-SEVERE PSORIASIS IN ITALY**

Di Martino S1, Colombo GL2

1S.A.E. Studi Analisi Valutazioni Economiche, Milan, Italy, 2S.A.E Studi Analisi Valutazioni Economiche, Milan, Italy.

OBJECTIVES: Biologic therapies have proven efficacious for patients with moderate-to-severe psoriasis. However, recommended therapeutic regimens and modes of administration differ from agent to agent. For Italy, their economic value compared with standard of care has not been explored. This study estimates the cost-effectiveness of intermittent therapy with etanercept in patients with moderate-to-severe plaque-type psoriasis in comparison with non-systemic therapy in Italy. METHODS: This study applies cost-utility analysis using a Markov model and the “York model”. It compares intermittent etanercept vs non-systemic therapy in terms of cost per Quality-Adjusted Life Year (QALY). Data on efficacy and changes in quality of life were derived from three etanercept clinical trials. Direct costs of treating patients, including hospitalizations and dermatology clinic visits, were taken from an Italian cost-of-illness study. Extrapolations were made to evaluate the cost-effectiveness of intermittent etanercept vs non-systemic therapy over a period of 10 years. RESULTS: For the group of patients with moderate and severe plaque psoriasis (initial Psoriasis Area and Severity Index (PASI) ≥ 20) the incremental cost-effectiveness ratio (ICER) for etanercept compared with non-systemic therapy was $33,216/QALY; for the group of patients with severe psoriasis (PASI ≥ 20), the ICER was $25,486/QALY. CONCLUSIONS: Within the Italian health care system, intermittent etanercept (25 mg twice weekly) is a cost-effective therapeutic option compared with non-systemic therapy for the group of patients with moderate and severe plaque psoriasis. For patients with PASI ≥ 20 etanercept cost-effectiveness is even greater.

**PS28**

**COST-EFFECTIVENESS OF USTEKINUMAB VERSUS ETANERCEPT IN SEVERE PLAQUE PSORIASIS PATIENTS: A CANADIAN PERSPECTIVE**

Braizer N1, Pan P2, Shear N2, bor J3, Schanbacher B2, Brown A4

1Baird-Onto Inc, Toronto, ON, Canada, 2United BioSource Corporation, Bethesda, MD, USA, 3University of Toronto, Toronto, ON, Canada, 4J&J Pharmaceutical Services LLC, Horsham, PA, USA.

OBJECTIVES: To determine the cost-effectiveness of ustekinumab versus etanercept among Canadian adults with severe plaque psoriasis who have previously failed or are intolerant or contraindicated at least one conventional systemic therapy. METHODS: The York Model, developed to evaluate biologics for the National Institute for Health and Clinical Excellence, was adapted to the Canadian environment. The model consisted of an initial 12-week trial period based on results from ACCEPT, an active-control phase III trial which demonstrated superior efficacy of ustekinumab versus etanercept. The maintenance period, consisted of the trial results extrapolated over a 10-year time horizon. The cost-utility analysis compared estimates of expected costs and health effects of ustekinumab 45 mg q12w and etanercept 50 mg q4w for 12 weeks and qw thereafter. Response was defined as achievement of ≥PASI 75 from the ACCEPT trial. Non-responders were switched to supportive care. Resource utilization was obtained from the literature and a Delphi panel of Canadian dermatologists. Direct health care costs were estimated from the literature and expert opinion. Utility was mapped from DLQI to EQ-5D using the algorithm used by the York Model. Costs and outcomes were discounted at 5%. RESULTS: Mean annual costs and QALYs for ustekinumab were $16,835 and 0.1464 compared to $19,558 and 0.1419 for etanercept. These results were robust to changes in parameter estimates. Not knowing the costs of adverse events over the 10-year time horizon was a limitation of the analysis. Cost-effectiveness acceptability curves show that at all levels of willingness-to-pay for one additional unit of efficacy, ustekinumab 45 mg q12w remains a more cost-effective treatment option than etanercept. CONCLUSION: Ustekinumab was more effective and less costly than etanercept over a 10-year time horizon, suggesting that ustekinumab is a dominant treatment option relative to etanercept for the treatment of patients with severe plaque psoriasis.

**PS29**

**SENSORY SYSTEMS DISORDERS – Patient-Reported Outcomes Studies**

**PS30**

**ADHERENCE TO ANTIGLAUCOMA DRUG TREATMENT IN NEWLY TREATED PATIENTS**

Moubarak M, Fredeville MJ, Duchesne T, Sirius C, Grégoire JP

Université Laval, Québec, QC, Canada.

BACKGROUND: Lack of adherence to drug treatment is a major obstacle to disease control. Persistence and compliance are two components of adherence. OBJECTIVES: to assess: 1) the proportion of antiglaucoma medication users who persist on their treatment after 12 months; 2) the proportion of compliant users among them; and 3) the determinants of persistence and of compliance. METHODS: A population-based cohort study using the Quebec Health Insurance Board databases. Patients initiated on antiglaucoma medication treatment between January 1, 1998, and January 6, 2007 were included. Patients still undergoing treatment with any antiglaucoma medication 1 year after their first prescription were considered persistent. Of these patients, those with a supply of drugs for at least 80% of the days were deemed compliant. A multivariate logistic regression model using a stepwise procedure was used to identify the characteristics associated with both persistence and compliance. RESULTS: Of the patients on antiglaucoma medication, 41,005 (59%) were persistent after 1 year, and 16,592 (40.5% of those who persisted) were compliant. Patients more likely to be both persistent and compliant were female and those whose first prescription was made by an ophthalmologist. Increasing age, living in a rural area, and having initiating glaucoma treatment after 2002 were associated with persistence, whereas having used more than five prescription drugs in the year preceding antiglaucoma treatment initiation was associated with better compliance. Patients initiated on sympathomimetics, parasympathomimetics, carbonic anhydrase inhibitors, beta blocking agents and on more than