scores (and changes) using results of a mixed treatment comparison (first 6 months) and discordance resolution trials (final 6 treatment periods). Where available, meta-analysis data were used to estimate adverse events incidence, followed by individual trial data and registry estimates. Canadian data from published sources were used to derive healthcare resource utilization costs and EuroQol-5D scores from the EQ-5D-5L. Costs were estimated for Canadian dollars and one-way sensitivity analyses were completed on analytical horizon, event rates, and efficacy thresholds. RESULTS: After running the model for 100,000 simulations of treatment to severe RA patients, the treatment arm including tocilizumab had lifetime costs of $298,434 with 8.17 QALYs. Comparatively, the treatment arm excluding tocilizumab had a lifetime cost of $305,158 with 7.88 QALYs. Therefore, a treatment strategy including tocilizumab is dominant with lower costs and greater effectiveness. One-way and probabilistic sensitivity analysis reflected the robustness of these results. CONCLUSIONS: The inclusion of tocilizumab into the treatment strategy for moderate to severe RA is a dominant strategy in Canada (lower cost and increased QALYs).

PMS47

MODELLING THE COSTS AND OUTCOMES ASSOCIATED WITH SEQUENCE OF TREATMENT WITH AND WITHOUT TOCILIZUMAB FOR THE TREATMENT OF MODERATE TO SEVERE RHEUMATOID ARTHRITIS IN THE US

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic inflammatory condition with significant economic burden. Tocilizumab is an oral Janus kinase inhibitor indicated in the therapy of the treatment of moderate to severe RA which has been shown to respond to methotrexate. Given the similarity of indications across available therapies, economic evaluation of alternate treatment strategies could inform US formulary decision making. This cost-effectiveness analysis was compared to other cost-effectiveness studies that reported after methotrexate failure in a treatment strategy compared with a similar sequence without tocilizumab from a US third-party payer’s perspective. METHODS: A Markov model estimated outcomes of RA patients with a pre-specified “treatment sequence” (sequential methotrexate, tocilizumab, adalimumab, abatacept, tocilizumab, rituximab) versus a “comparator sequence” (sequential methotrexate, etanercept, adalimumab, abatacept, tocilizumab, rituximab). All costs and QALYs were considered based on the United States Assessment Questionnaire (HAQ) and compared using adjusted US prices and data from long-term extension trials. Adverse event data were from published meta-analyses and trials of tocilizumab and comparators. Patient characteristics were based on tocilizumab clinical trials (NCT00856544, NCT00847613, NCT00853385). RA-related costs were from published data mapping HAQ onto healthcare resource utilization in US patients with RA. Direct costs were not considered. Results were presented as the mean of a 100,000 simulation run. CONCLUSIONS: Our model suggests that in the long-term treatment of third-party payer’s perspective, the predicted lifetime cost of treatment “sequence” including tocilizumab was $509,047 versus $546,860 for “comparator sequence” without tocilizumab, with the difference primarily driven by drug cost. The ”treatment sequence” with tocilizumab resulted in an additional 0.11 quality-adjusted life years versus “comparator sequence.” Probabilistic sensitivity analysis suggested the probability that tocilizumab is cost-effective as second-line therapy is 64.0% at a threshold of $100,000. CONCLUSIONS: Our model suggests that in the long-term treatment of RA patients, the predicted lifetime cost of treatment “sequence” including tocilizumab was $509,047 versus $546,860 for “comparator sequence” without tocilizumab. Sensitivity analysis reiterated robustness of the findings and cost-effectiveness of including tocilizumab. Results of alternate treatment sequence comparisons were similar.

PMS48

COST-EFFECTIVENESS OF TOCILIZUMAB FOR THE MANAGEMENT OF INADEQUATELY RESPONDING RHEUMATOID ARTHRITIS PATIENTS

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic inflammatory disorder of the musculoskeletal system. After inadequate response (IR) to anti-tumor necrosis factor (anti-TNF) treatments, the clinical and economic value of alternative biologic agents is unclear. We sought to estimate the cost-effectiveness of tocilizumab versus abatacept from a U.S. payer perspective. METHODS: We constructed a treatment-regimen based cohort model with a lifetime horizon. The model evaluated the treatment comparison of tocilizumab (162mg every other week with escalation to weekly for inadequate responders) vs. abatacept (125mg, weekly). In this comparison, treatment initiation was followed by a cetuximab-tofacitinib-rituximab-palliative care sequence. Treatment response rates were applied every 6 months. Health related quality of life was mapped to the health assessment questionnaire (HAQ) for RA. Mortality was modelled allowing for both non-RA and RA-specific mortality predicted by the HAQ. Costs were derived from published sources and included drug treatment, monitoring, and direct medical resource utilization costs. Costs and QALYs were discounted at 3%. Sensitivity analyses were performed using a series of Monte Carlo simulations. RESULTS: The model estimated the two initial treatments, tocilizumab dominated abatacept yielding better outcomes and fewer costs. Probabilistic sensitivity analyses indicated substantial uncertainty in the HAQ coefficients used in the Markov model. Tocilizumab had an 89% probability of being cost-effective at $50,000/QALY. The one-way sensitivity analysis indicated that the parameters related to baseline HAQ and improvement in the ACR 50 and 70 rates had the most impact on model results. CONCLUSIONS: The treatment arm including tocilizumab represents a challenge for the health care system. Compared to abatacept, tocilizumab appears to represent a lower cost treatment option with improved outcomes. However, with the attendant uncertainty, head-to-head trials of these agents may be warranted.

PMS49

ECONOMIC EVALUATION OF TOCILIZUMAB AS INITIAL MEDICATION IN ADULTS WITH RHEUMATOID ARTHRITIS AFTER FAILURE TO METHOTREXATE IN CHILE

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OBJECTIVES: Rheumatoid Arthritis (RA) destroys synovial joints and generates pain. Its prevalence in Chile has been estimated to be 0.46% (IC 95% 0.24-0.8). Available drugs for treatment include conventional synthetic Disease-Modifying Antirheumatic Drugs (csDMARDs), biological therapies and a new drug approved for treatment after failure of csDMARDs: tocilizumab. The aim of this study is to compare the costs-effectiveness of tocilizumab relative to biological therapies as an initial treatment in adults with RA after failure of methotrexate in CHILE. METHODS: A simultaneous Monte Carlo model of individual patients compared two treatment sequence comparisons with and without tocilizumab vs biological therapy as initial medications; always assuming a combination therapy with methotrexate; biological therapies validated with rheumatologists and included in the model were etanercept, infliximab, tocilizumab, adalimumab, rituximab and salvage therapy (defined by experts). The characteristics of the patient included: age, weight, initial HAQ score, and clinical response to short and long term treatment. HAQ scores were used to calculate utilities, measured in QALYs based on Chile’s HAQ utility function. All costs were obtained from public tenders and official reports from Chilean Ministry of Health. The analysis was made from third-party payer perspective with one, five, ten years and lifetime horizon. Annual discount rate was 3%. Results are expressed in $US (P= 0.05, CLP600). RESULTS: Total costs, for year one of treatment was US$56,627 starting the sequence with tocilizumab and US$11,638 starting with etanercept; obtained HAQ: CLP1.39 vs CLP0.97 $US 7.69 and 0.68, respectively. The total cost of the sequence strategy for lifetime horizon initiating with tocilizumab, was US$263,737 compared to the treatment with biological therapy. US$259,403 with a difference of 0.62HAQ-QALY for utility. The costs included the drug, administration and health care. CONCLUSIONS: The sequence of treatment with tocilizumab as initial medication is cost-effective compared to biological therapies used in Chile. Net savings with this drug is US$35,006.

PMS50

WHAT IS THE COST-EFFECTIVE BEARING SURFACE CHOICE IN PRIMARY TOTAL HIP ARTHROPLASTY

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OBJECTIVES: Primary Total Hip Arthroplasty (THA) provides quality of life to patients and is cost-effective. Improvements to implant life have focused on the bearing surface with ceramic-on-polymethylene (CoP) bearing use growing rapidly due to evidence of longer implant life. We sought to determine if the increased CoP over the metal-on-polymethylene (MoP) provides enough benefit through lower revision rate to justify its utilization. METHODS: A Markov decision model was designed to determine the reduction in CoP 20-year revision rate required to make this implant cost-effective compared to MoP. The Orthopedic Database provided hospitalization costs for primary and revision surgeries. The Orthopedic Research Network (ORN) provided aggregated implant purchase price and utilization data. RESULTS: Without the benefit of low revision rate, the CoP and MoP were equal. With a 20-year revision rate of 3% CoP was $325/-$177 p=0.014) and $1,003/-$385 on 8,566 patients. HealthEast’s data represented 2% of the total population. CONCLUSIONS: The revision rate varied was until the lifetime costs were equal for the 2 different bearings. RESULTS: The sample included 20,389 patients aged 45+9 years from 475 US hospitals. CoP vs MoP represented a $325/-$177 p=0.014) and $1,003/-$385, respectively, based on adjusted analysis of Premier data. ORN reports indicated a $600 difference on 2012 revision costs. $25,628/$385 on 8,566 patients. HealthEast’s data indicates a 20-year MoP revision rate of 14.5/100THAs. An inflection in the revision