ARTHRITIS—Clinical Outcomes Studies

PAR1
RHEUMATOID ARTHRITIS IMPACT OF DISEASE AND DRUG THERAPY
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OBJECTIVE: Rheumatoid arthritis (RA) was not considered a fatal disease, however more recent evidence suggests increased frequency of cerebrovascular events in RA patients, attributable to factors beyond those explained in the general population. The primary purpose of this study is to compare the incidence of new cerebrovascular events in RA versus non-RA patients using retrospective database accounting for traditional cardiovascular (CV) risk factors. METHODS: RA patient cohort was identified using ICD-9 diagnosis and prescription drug dispensed codes from the Georgia Medicaid population database from 1999 to 2001. Cerebrovascular events were identified using ICD-9 codes for: acute cardiovascular events; other cardiovascular events; precardiac events; or transischemic attacks (TIs). A randomized stratified matched case control analysis of RA versus non-RA patients was performed based on age, sex, and race. RESULTS: A sample of 11,842 was included in the study (5921 RA and 5921 non-RA): 44% were white, 80% female and 70% were aged 21 to 64 years of age. Unadjusted contingency tables showed the odds of someone having CV, TIA, other CV, and occlusive disease was 1.58, 2.74, 3.00 and 2.46 times more likely for a RA than a non-RA patient, respectively. CONCLUSION: The results of this study supports earlier studies (Ricon et al 2001) showing that RA patients were at greater risk of cerebrovascular disease, however, future study is needed to investigate the etiology. This could be beneficial in designing preventative treatment strategies.

PAR2
INFLIXIMAB DOSING PATTERNS IN RHEUMATOLOGY PRACTICES
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OBJECTIVES: Infliximab, an antibody that binds to tumor necrosis factor-alpha (TNF-alpha) is indicated for the treatment of rheumatoid arthritis (RA). In August 2001, the prescribing information for infliximab in RA was broadened, allowing both dose titration (3–10mg/kg) and infusion interval modification (every 4–8 weeks). A retrospective, observational study of infliximab dosing patterns in rheumatology practices was conducted to assess the impact of this label change. METHODS: Rheumatology practices with multiple calls to the infliximab Health Connections Hotline were surveyed and participated (n = 40). Each practice identified 3 patients pre-label change (group 1) and 3 patients post-label change (group 2) in a blinded, randomized fashion. Data on demographics, insurance, diagnosis code, prior medication use and infliximab infusion history was collected. RESULTS: Of 249 responses, 206 (82.7%) were evaluated and analyzed with no statistical differences between groups 1 (n = 98) and 2 (n = 108). The median infliximab dose in the induction phase and first maintenance dose was 3.0mg/kg for both groups. By maintenance dose 3, the group 1 median dose remained at 3.0mg/kg while group 2 showed a nonsignificant increase to 4.0mg/kg, although both groups reported significant steroid discontinuation. The mean number of vials administered at this time was 3.2 (group 1) and 3.7 (group 2). The majority (> 75%) of patients received £5mg/kg every 8 weeks by maintenance dose 3. CONCLUSIONS: Dose flexibility did not significantly increase infliximab dose or decrease dosing interval in this cohort. The majority of RA patients receive an infliximab dose of £5mg/kg every 8 weeks with concomitant steroid discontinuation.

ARTHRITIS—Cost Studies

PAR3
ECONOMIC EVALUATION OF SELF-INJECTION VS AMBULATORY CARE OF ANTI-RHEUMATOID BIOLOGICS (ETANERCEPT) IN JAPAN
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OBJECTIVE: To compare economic value of two administration methods (self-injection and ambulatory care) of anti-rheumatoid biologics (etanercept) by application of cost-effectiveness analysis (CEA). METHODS: From A societal perspective, we gathered cost data and outcome data. Cost data: 1) direct medical cost: physician visit fee, injection fee, laboratory test fee, and in-house self-injection guidance fee (from health insurance fee schedule), drug costs (hypothetical costs—since etanercept is not approved by Ministry of Health, Labour and Welfare yet); 2) direct non-medical cost: transportation cost. Data were gained from “Rheumatoid tomonokai”, RA patients organization in Japan and teaching cost of self-injection. To estimate teaching cost, we conducted a survey to health care provider; AND 3) indirect cost: productivity loss. Outcome data: ACR20 gained from “Rheumatoid tomonokai”, RA patients organization in Japan and teaching cost of self-injection. To estimate teaching cost, we conducted a survey to health care provider; AND 3) indirect cost: productivity loss. Outcome data: ACR20 gained from 3rd phase of clinical trial data of etanercept in the Japan and safety issues subject to self-injection, such as delayed finding ADR, accidentally impale needles to other people, and so on. Such data were gained from case report form (CRF). Because we set the time horizon for analysis as 1 year, we did not apply discount rate. We performed sensitivity analyses on 1) incidence of ADR; 2) education cost; 3) frequency of hospital visit; AND 4) productivity loss. RESULT: Effectiveness of self-injection care and ambulatory care were considered to be similar. Adverse reaction due to self-injection was not reported. Thus, we conducted cost minimization analysis. Total cost of self-injection group including indirect costs was JPY2,674,758 ($US22,746), which was lower than that of ambulatory care group, JPY3,255,110.
OBJECTIVE: To examine the cost-effectiveness of using TNF-alpha inhibitors as first-line agents in rheumatoid arthritis from a societal perspective, and secondly determine which of the current TNF-alpha inhibitors is the most cost-effective in this role. METHODS: A Markov model was developed utilizing a discount rate of 3% and a lifetime time horizon for a hypothetical cohort of United States females aged 55–60 who are diagnosed with RA. The source of data for predicted probabilities, expected mortality rates, and treatment costs in year 2003 dollars (drug, toxicity, monitoring, and hospitalization) is from the literature. These costs are assigned in five-year cycles along with the effect on quality adjusted life years (QALY), which is a function of the Health Assessment Questionnaire score. A sensitivity analysis was conducted on all relevant parameters. RESULTS: Etanercept was the most cost-effective TNF-alpha inhibitor. It had an incremental cost-effectiveness ratio (ICER) of $80,330 versus standard therapy. When taking into consideration age of diagnosis and potential reduction in compliance-related efficacy with traditional DMARDs, the ICER varies from $56,412 to $86,211. When assigned etanercept’s first-line efficacy in the sensitivity analysis, adalimumab (ADAL) and infliximab (INF) had ICERs of $82,783 and $65,881 versus standard therapy, respectively. CONCLUSION: Depending where the cost-effective threshold is drawn ($50,000–$100,000), etanercept is relatively cost-effective versus standard care at $80,350. ADAL and INF may also be cost-effective depending on results of future head-to-head monotherapy trials.

COST-EFFECTIVENESS OF TREATMENT STRATEGIES FOR RHEUMATOID ARTHRITIS PATIENTS WITH INADEQUATE RESPONSE TO METHOTREXATE

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BACKGROUND: Several treatment options are now available for rheumatoid arthritis patients that have inadequate response to methotrexate alone. These agents are different in terms of their efficacy, safety, cost, and ease of administration. This makes it essential to perform a cost-effectiveness analysis taking into account the important clinical and cost differences. This model focuses on two combinations with proven efficacy, in adequate well controlled trials, for patients with inadequate response to methotrexate. OBJECTIVE: Compare 2-year cost-effectiveness of two different treatment strategies, from the societal perspective, for rheumatoid arthritis patients with inadequate response to methotrexate: 1) Start patients on methotrexate (MTX) + leflunomide (LEF), 2) Start patients on MTX + tumor necrosis factor a (TNF-a).

METHODS: A 2-year decision analysis model with four semiannual cycles was developed to estimate the average cost/QALY, and the incremental cost-effectiveness ratio (ICER) for the two options, for female patients with mean age of 50 years. The model input parameters such as; response rates, dropout rates, costs, and QoL values were obtained either from published literature, or from expert opinion. Univariate sensitivity analysis was conducted to estimate percent changes in ICER from the base case analysis with change in gender, age, response rates, drug costs, and other parameters. RESULTS: The 2-year base case average cost/QALY is $8,531 for patients started on MTX + LEF, and $19,340 for patients started on MTX + TNF-a. The base case ICER for MTX + TNF-a is $36,147. In the univariate sensitivity analysis, ICERs varied from $23,267 to $63,479. The model was extremely sensitive to change in drug costs, and to the method used for conversion of HAQ/QoL scores into QALYs. CONCLUSION: This 2-year cost-effectiveness model suggests that for patients with inadequate response to methotrexate alone, the combination of MTX + TNF-a is a cost-effective strategy compared to MTX + LEF.