more economically effective alternative drug but it can be used only as second or third line of treatment with biological drugs according to Russian standards of rheumatoid arthritis’ management.

**PM524**

**BISTEPPHSONATES FOR THE TREATMENT OF POST-MENOPAUSAL OSTEOPOROSIS**

**AUTHORS:** Blaser DA, Gagnon J

**OBJECTIVES:** This study seeks to compare the cost-effectiveness of bisphosphonates for the treatment and prevention of post-menopausal osteoporosis (PMO).

**METHODS:** A literature review was conducted to obtain all relevant treatment articles published through the end of 2009 that evaluate the cost-effectiveness of bisphosphonates for the treatment and prevention of PMO. PubMed and the Cochrane Database were used to search for the terms “bisphosphonates” and “cost-effectiveness.” Articles were limited to those evaluating at least one of the four products with an indication approved by the United States Food and Drug Administration for PMO: alendronate, ibandronate, risedronate, or zoledronic acid. Articles focusing on screening efforts, or evaluating the treatment of men, glucocorticoid-induced osteoporosis, or cancer-related bone complications were excluded. A manual review of the included articles’ references was also performed.

**RESULTS:** The literature search resulted in 189 articles of which 18 met the criteria for inclusion in this evaluation. Of these 18 studies, many examined the use of more than one bisphosphonate, therefore, the total number of comparisons identified for alendronate, ibandronate, risedronate, and zoledronic acid were 13, 3, 8, and 1, respectively. The incremental cost-effectiveness ratios obtained from this analysis varied greatly for all included agents: alendronate randomized from $-25,296.12 (cost-savings) to $934,883.71; ibandronate from $10,358.68 to $15,023.90; risedronate from $1,468.75 to $241,410.15; and zoledronate from $1,791.42 to $2,205.39. These results varied based on the included women’s age and underlying risk factors, the specific costs accounted for in each analysis, and the total duration of treatment.

**CONCLUSIONS:** Bisphosphonates represent cost-effective treatment options for the prevention and treatment of PMO. Given the evidence available, it is difficult to determine whether one agent is conclusively more cost-effective than another for this indication. Further studies directly comparing bisphosphonates should be conducted to evaluate their comparative cost-effectiveness.

**PM525**

**A PHARMAECONOMIC REVIEW OF ECONOMIC ANALYSES OF BIOLOGIC THERAPIES IN PATIENTS WITH ANKYLosing SPONDILITIS**

**AUTHORS:** Fries JF, Pillemer S, Skelton T

**OBJECTIVES:** To conduct a systematic review of economic analyses of biologic therapies in patients with ankylosing spondylitis (AS) METHODS: A systematic literature search was conducted by one researcher from January, 2000 to January, 2009 using Pubmed, Evidence-Based Medical Reviews, and Medline databases to identify all economic studies of biologic therapies in AS. Search key terms included ankylosing spondylitis, biologics, Adalimumab, Infliximab, Etanercept, cost, phar-macoconomics, and combination of search terms. The Quality of Health Economic Studies (QHES) instrument was used to assess the quality of economic studies included in the final review.

**RESULTS:** The initial search yielded nine studies out of which three review studies were excluded. The remaining six studies compared the biologics Etanercept, Infliximab, and Adalimumab against comparators such as NSAIDs and placebo. One study employed a cost-effective analysis (cost/Benefit score), while the remaining studies employed cost-utility analysis (cost/QALY). Infliximab and Adalimumab were found to be cost-effective compared to NSAIDs and placebo with a CE ratio of $10,000/QALY (US) and $5,093/QALY (UK). A com-binational therapy of Etanercept and Adalimumab was found to be cost-effective ($25,000, UK) versus NSAIDs. A combination of Infliximab and Etanercept versus NSAIDs alone was not cost-effective (Etanercept $42,494/QALY, Infliximab $67,207/QALY). CONCLUSIONS: In most studies the CE ratio of Adalimumab and Infliximab was below the accepted threshold of $50,000/QALY (US) and $25,000/QALY (UK). However, a study conducted in the The Netherlands did not provide the combinational use of Infliximab and Etanercept in the treatment of AS, since the total cost treatment was higher than the accepted threshold of $16,000/QALY.

The studies reviewed varied in scope and methodology and this review highlighted the need for additional studies. Decision-makers must take into account country and model-specific parameters in order to make decisions on the use of biologic therapies in AS.

**PM526**

**ECONOMIC ANALYSIS OF VERTEBROPLASTY AND KYPHOSPLASTY FROM THE HOSPITAL PERSPECTIVE**

**AUTHORS:** Larner JF, Fairbank J, Crooks L, Slonk T

**OBJECTIVES:** The clinical burden associated with osteoporotic vertebral body compression fracture (VCF) has been well documented in the literature. Less information is available on the economics of interventions for treatment of VCF—including vertebroplasty and kyphoplasty—which are reported to be equally efficacious options for patients suffering from this debilitating condition. This study seeks to quantify hospital costs associated with vertebroplasty and kyphoplasty.

**METHODS:** Analysis of hospital discharge and billing records extracted from the Premier PerspectiveTM database, 2007–2008. The Premier database contains clinical and financial information from over 1,000 hospitals. Independent of whether the two tests were used to calculate differences in total and department-specific direct medical costs incurred during the index inpatient or outpatient procedure. RESULTS: A total of 36 patients received vertebroplasty (64% inpatient and 36% outpatient) and 8,118 received kyphoplasty (54% inpatient and 46% outpatient) for treatment of VCF. Patients in the vertebroplasty group had a mean age of 78, and patients in the kyphoplasty group had a mean age of 76. More patients in the vertebroplasty group (14.5%) had an AP-severity rating of “major” or “extreme” than patients in the kyphoplasty group (9.5%). Mean total inpatient costs were $9,837 for vertebroplasty compared to $13,187 for kyphoplasty ($p<0.0001). Mean total outpatient costs were $3,319 for vertebroplasty compared to $8,100 for kyphoplasty ($p=0.0001). Adjustments to control for differences in age, sex, admission status, and disease severity accentuate these differences.

**CONCLUSIONS:** The objective was to compare and Adalimumab in terms of adequacy of recommended indications and of the health care costs. METHODS: This survey of cost minimization was performed by an office based pharmacist consulting a questionnairre at the moment of the delivery of one among two ambula-}
CANADIAN COST-EFFECTIVENESS ANALYSIS OF ABATACEPT (ORENCIA®) FOR THE MANAGEMENT OF MODERATELY TO SEVERELY ACTIVE RHEUMATOID ARTHRITIS IN PATIENTS WITH INADEQUATE RESPONSE TO METHOTREXATE
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BACKGROUND: Biological therapies including infliximab, etanercept, adalimumab and abatacept are options for rheumatoid arthritis (RA) patients who had an inadequate response to Disease-Modifying Anti-Rheumatic Drugs (DMARDs), such as methotrexate (MTX). OBJECTIVES: To determine the cost-effectiveness of abatacept compared to other biologics in the treatment of moderate-to-severe active RA in patients with inadequate response to MTX in Canada. METHODS: An existing US-based cost-effectiveness model was adapted to the Canadian setting. The techniques of dynamic simulation were employed to estimate the impact of abatacept and other biologics on functional disability (expressed in patients’ Health Assessment Questionnaire (HAQ) scores) and clinical and economic outcomes. The model focuses on a hypothetical cohort of patients, simulating their disability quarterly over 1, 5, 10 years and lifetime. First-order simulation was conducted to gauge the influence of individual input parameters. Second-order Monte Carlo simulation was performed to examine the overall effect of uncertainty in the model. Efficacy data were based on a separate meta-analysis. The perspective adopted was that of a provincial ministry of health. Utility data were obtained from a study that mapped Health Utility Index values on a Canadian RA population. Costs (2009 CAD) and outcomes were discounted at 5% annually. RESULTS: Abatacept has a cost-effectiveness ratio of approximately $93,000 per QALY gained vs. MTX, comparable with those of etanercept ($96,000) and adalimumab ($112,000) and much lower than that of infliximab ($171,000). At willingness-to-pay between $80,000 and $97,000, abatacept is the most cost-effective option. Results were most sensitive to the assumption of the threshold for clinically meaningful HAQ improvement at 6-month and applied time horizon. CONCLUSIONS: Determination of an appropriate biological therapy in RA depends on multiple factors including economic value. Abatacept offers a valuable therapeutic option for the treatment of moderate-to-severe active RA in patients with inadequate response to one or more DMARD therapies.

ADHERENCE TO DULOXETINE AND HOSPITAL UTILIZATION IN PATIENTS WITH MAJOR DEPRESSIVE DISORDER AND CHRONIC PAIN
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OBJECTIVES: Duloxetine, a serotonin and norepinephrine reuptake inhibitor, has been approved for the treatment of both major depressive disorder (MDD) and certain chronic pain-related diseases (CPD). This study examined the association between adherence to duloxetine and hospital utilization among MDD patients with CPD. METHODS: This is a retrospective cohort study analyzing data from the MarketScan commercial databases. Patients were included in the analyses if they used duloxetine for at least one CPD of interest (fibromyalgia, diabetes with neurological manifestations, chronic low back pain, headache, and osteoarthritis). Patients were followed up 12 months after index date. Adherence was defined as medication possession ratio (MPR) of 80% or higher. Hospital utilization included emergency room visits and hospitalizations. Psychiatric hospitalizations were based on principal diagnosis codes for admissions. Logistic regression and negative binomial regression models were used to adjust for patient characteristics. RESULTS: Compared to those with MPR < 80% (n = 2,998), patients adherent to duloxetine (n = 2,159) had fewer emergency room visits (1.1% vs. 2.07%, p < 0.0001), lower likelihood of emergency room visit (36.85% vs. 41.57%, p = 0.0003), fewer all-cause hospitalizations (0.34 vs. 0.46; p < 0.0001), fewer psychiatric hospitalizations (0.10 vs. 0.15; p < 0.0001), fewer all-cause hospitalization days (1.46 vs. 2.43; p < 0.0001), fewer psychiatric hospitalization days (0.33 vs. 1.94; p = 0.0001), lower likelihood of hospitalization for any cause (20.97% vs. 25.07%; p = 0.0003) and lower likelihood of psychiatric hospitalization (6.80% vs. 8.97%; p = 0.0028). These differences were especially the same after adjusting for patient characteristics. CONCLUSIONS: Adherence to duloxetine was associated with lower hospital utilization among MDD patients with CPD, suggesting the importance of improving patient adherence to duloxetine. Future studies should examine whether the lower hospital utilization associated with duloxetine adherence translates to lower costs.