OBJECTIVE: Miacalcin is a recently (2000) introduced anti-osteoporosis drug. Clinical trials have demonstrated that the drug appears to be relatively free of side-effects. This preliminary analysis investigates the relationship between the consumption of Miacalcin and other health care costs.

METHODS: All physician service and medication claims submitted to the government of the province of Québec, Canada, were obtained for individuals with at least one prescription of Miacalcin or another anti-osteoporosis drug (Evista or Fosamax), during the period January 1, 1999 to March 31, 2001. Two-part models (multiple logistic regression followed by linear regression) were used to analyze the data.

RESULTS: Based on utilization records of 60,469 individuals (for all anti-osteoporosis drugs combined), increased use of Miacalcin appears associated with a small reduction in the number of subsequent diagnostic tests and prescriptions for other drugs: 100 days over the first 6 months of 2000, translating into reductions of about 0.3 tests over the next 9 months, or about $24; and a reduction in the number of prescriptions for other drugs in the subsequent 9 months of about 3.1, or about $84. Consumption of Miacalcin does not, however, appear to be associated with a subsequent overall reduction in physician service costs. People who were prescribed Miacalcin in 2000 had higher physician costs in 1999 than people who consumed either of the two other drugs in 2000.

CONCLUSIONS: Evidence that people who were prescribed Miacalcin differ systematically from those who were prescribed other anti-osteoporosis drugs may limit generalizability of the findings. Unit costs used were somewhat imprecise. Nonetheless, the cost of Miacalcin appears to be partially offset by subsequent savings in other health care costs, primarily medication costs.

AN ECONOMIC COMPARISON BETWEEN COX-2 INHIBITORS AND CONVENTIONAL NSAIDS IN THE TREATMENT PAIN RELATED TO ARTHRITIS

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OBJECTIVE: Selective COX-2 inhibitors (coxibs) provide comparable efficacy with less gastrointestinal (GI) adverse events compared to the conventional non-selective non-steroid anti-inflammatory drugs (NSAIDs) in patients with arthritis. We conducted an economic analysis, focusing specifically on differences in GI-related event rates between the coxibs and conventional NSAIDs.

METHODS: We developed a decision model, using Microsoft Excel® and Decisioneering Crystal Ball®, which focused on three areas of potential economic differentiation between treatment with COX-2 inhibitors and conventional non-selective NSAIDs: GI-related complications, uncomplicated GI ulcers, and GI-related adverse effects. The model was populated with published data describing resource implications and mortality risks, unit costs, underlying NSAID GI-event risks and relative GI-event risks for coxibs. We considered two treatment options (i) celecoxib and (ii) a single NSAID drug based on naproxen, ibuprofen, or diclofenac (as observed in the CLASS study). Sensitivity analyses considered variation in the underlying GI-event risks alongside general uncertainty in resource usage and drug cost data.
RESULTS: Under baseline GI complication annual risk assumptions (1.5% for NSAIDs), cost savings for celecoxib ($10,000 per 100 patients) through avoided GI events were dominated by the additional drug costs ($66,000 per 100 patients). This relationship held true even when higher costs NSAIDs, based solely on either diclofenac or naproxen, and higher underlying rates of 6% were considered. Cost effectiveness ratios were calculated at $41,824 per life year gained under baseline conditions. Sensitivity analysis showed, however, that underlying annual risk of GI-related complication had a strong influence on the cost-effectiveness of the COX-2 inhibitors. At 3% per year risk levels, the cost per LYG reduced to $17,107.

CONCLUSION: The analysis suggests that the coxibs have an attractive cost-effectiveness profile when patients have an underlying annual risk of GI-related complications on NSAIDs of at least 2.5% (equivalent to a patient having at least two recognised risk factors).

COST-EFFECTIVENESS OF PHARMACEUTICAL TREATMENTS OF FRACTURE IN WOMEN WITH ESTABLISHED OSTEOPOROSIS IN HONG KONG

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OBJECTIVES: Osteoporosis is a major public health problem in Asia. The objectives of this study were to compare the cost-effectiveness of different pharmaceutical treatments for Hong Kong women with established osteoporosis.

METHODS: We compared the cost-effectiveness of treatments using a decision analytic model based upon Markov process for a hypothetical cohort of women at risk of fractures due to osteoporosis. A cohort of 100,000 postmenopausal women were simulated and followed for 10 years of treatment. The model included a number of scenarios based upon available pharmaceutical treatment alternatives in costs, clinical effectiveness, and time of treatment onset. Sensitivity analyses were performed to test the robustness of results.

RESULTS: Programme costs, economic benefits, and cost-effectiveness ratios varied significantly among different treatments. Calcium and Alendronate are more cost-effective than Calcitonin. Treatment efficiency has significant impact on the overall cost-effectiveness of the programmes. Later time of treatment onset improved the cost-effectiveness across programmes. While discounting and cost assumptions had some impact on the absolute value of cost-effectiveness ratios, they did not change the relative ranks of cost-effectiveness of different treatments.

CONCLUSION: Calcium and Alendronate are more cost-effective treatments. As the population ages and more people are subjective to risks of fracture due to osteoporosis, policy formulating should consider the cost-effectiveness of the treatment as well as the time of treatment onset.

COST-EFFECTIVENESS OF VARIOUS TREATMENT STRATEGIES IN POSTMENOPAUSAL WOMEN WITH OSTEOPOROSIS IN POLAND

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OBJECTIVES: To identify and compare the cost-effectiveness of raloxifene, alendronate and nasal calcitonin in the treatment of osteoporosis in postmenopausal women in Poland.

METHODS: Model for the Polish health-care context was developed, based on the use of clinical data from literature and local data of health-care resource utilisation and unit cost. Only the direct medical costs were analysed. The perspective of health-care payers and time horizon of 3 years was considered. The target population were patients aged 68, without (group I) and with or without (group II) previous vertebral fractures. The outcomes measures were LYG and QALYs gained, calculated on the basis of available evidence for a preventive effect on a hip, vertebral, wrist and ankle fractures and breast cancer risk. The cost-effectiveness threshold was calculated on the basis of 1-year haemodialysis treatment cost (60,000 PLN, 1 USD = 4 PLN; in 2002). The one-way and two-way sensitivity analysis was performed.

RESULTS: The highest effectiveness in terms of LYG and QALYs was achieved with raloxifene treatment compared to alendronate and calcitonin. Calcitonin was the least effective and the most costly strategy. Incremental analysis suggests that raloxifene compared with alendronate gives additional effects for extra costs below suggested cost-effectiveness threshold: the ICER was 35023 PLN/LYG and 31023 PLN/QALY gained in group I, and 45834 PLN/LYG and 40571 PLN/QALY gained in group II. Sensitivity analysis showed that calcitonin remained dominated strategy by comparators in all cases. Only raloxifene price and incidence of breast cancer changes have significant effect on the ICER, placing it above the cost-effectiveness threshold.

CONCLUSIONS: Given the results of the analysis, in postmenopausal women calcitonin is less effective and more costly than alendronate and raloxifene. Based on current evidence, raloxifene appears to be cost-effective when compared with alendronate and within a Polish context offers substantial benefit at reasonable cost.