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Title The Cost Effectiveness of Celecoxib and Rofecoxib in Patients with Osteoarthritis or Rheumatoid Arthritis

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Aim

This study evaluates the cost effectiveness of using two COX2 nonsteroidal antiinflammatory drugs (NSAIDS) versus the "traditional" NSAIDS to treat patients with osteoarthritis (OA) or rheumatoid arthritis (RA) who are not on low-dose aspirin for the prevention of cardiovascular (CV) disease:

– Celecoxib, in comparison to diclofenac and ibuprofen

– Rofecoxib, in comparison to naproxen (rofecoxib is currently not approved in Canada for treating RA).

Conclusions and results

While rofecoxib and celecoxib were found to be cost effective in high-risk patients (ie, those with proven histories of upper gastrointestinal (UGI) events), these drugs do not provide cost-effective therapy in patients who are at average risk (ie, those who have not experienced UGI events). Also, the drugs are not cost effective in a population with a typical mix of average-risk and high-risk patients. However, both drugs were shown to provide cost effective therapy for older patients without additional risk factors: rofecoxib for patients over the age of 76, and celecoxib for patients over 81. If a low-priced proton pump inhibitor becomes available, however, these drugs may no longer be cost effective in comparison to therapy that combines a "traditional" NSAID with a proton pump inhibitor.

Methods

A decision analysis model was constructed where UGI and CV events were modeled as a consequence of NSAID intake. The model used the Markov technique and extrapolated clinical trial results over 5 years. Major events included:

– Clinical UGI events (symptomatic ulcer)

– Complicated UGI events (perforation, obstruction, or major bleeding)

– Non-fatal myocardial infarctions.

Key estimates of event rates and the relative effectiveness of COX2 NSAIDS in reducing these rates were based on data from two key clinical trials: the Vioxx® Gastrointestinal Outcomes Research (VIGOR) study and the Celecoxib Long-Term Arthritis Safety Study (CLASS). Remaining probability estimates were obtained though a comprehensive literature search. Utility estimates for arthritis health states that are complicated by UGI events were gathered through a separate study of 60 randomly selected members of the general public. Cost estimates were obtained from provincial databases. Incremental cost effectiveness was calculated from the perspective of the Ontario Ministry of Health in 1999 dollars. The sensitivity of the cost effectiveness results to changes in individual variables was tested, as was the effect of an additional risk factor.

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