Nabumetone in elderly patients with osteoarthritis: economic benefits versus ibuprofen alone or ibuprofen plus misoprostol
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
Use of nonsteroidal anti-inflammatory drugs (NSAIDs) for symptomatic relief in patients with arthritic conditions. In particular 1) Nabumetone 1 g/day; 2) Ibuprofen 2.4 g/day; 3) Ibuprofen 2.4 g/day plus misoprostol 800 (micro g/day).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis

Study population
Elderly patients (> 60 years of age) with osteoarthritis.

Setting
Primary care. The economic study was carried out in the USA.

Dates to which data relate
Cost data was calculated for 1992 US dollars, and effectiveness data was gathered from a trial conducted in 1993.

Source of effectiveness data
The evidence for effectiveness was derived from a single study.

Link between effectiveness and cost data
Cost data was not collected on patients included in the trial.

Study sample
171 elderly patients. No other detail was given.

Study design
Single blind clinical trial. Duration of follow-up was 3 months.

Analysis of effectiveness
The study was conducted on an intention-to-treat basis. The outcomes used were physician's evaluation of a patient's
improvement and the frequency of adverse events.

**Effectiveness results**
The physician's evaluation demonstrated improvement in 64% of the patients receiving Nabumetone, 55% on Ibuprofen and 63% on Ibuprofen plus Misoprostol. Patients who received Ibuprofen had significantly (P<0.01) more lesions of any size. The adverse events requiring medical interventions were: 5 cases with Nabumetone; 10 cases with Ibuprofen; 20 with Ibuprofen plus Misoprostol.

**Clinical conclusions**
Nabumetone and Ibuprofen plus Misoprostol were seen to be equally beneficial, although Nabumetone was associated to minor adverse effects.

**Modelling**
A decision tree was used to estimate costs.

**Measure of benefits used in the economic analysis**
Patient's improvement and frequency of adverse events.

**Direct costs**
Costs and quantities of the resources were not reported separately. Direct costs related to health care payers. More precisely the following costs were included: drugs, physician visits, tests, procedures and hospital stays due to the treatment of any drug-related adverse effects.

Reduced hospital costs (due to reduced side effects, for example, gastrointestinal) were also considered for lesions > 0.5cm. However, the probabilities for lesions requiring treatment (>0.5cm) were reduced by a factor of 40% to account for the lower expected number of lesions discovered under routine (not endoscopically) clinical practice. Allowance was made for cases in which patients switched from one NSAID to another as a result of adverse events.

Costs were based on various sources: for example, 1992 price list for drugs, 1992 DRG reimbursements, published studies and official data for the treatment of adverse events. Final costs were calculated using a decision tree.

**Currency**
US dollars ($)

**Sensitivity analysis**
The authors considered the following one-way simple sensitivity analyses: a) variations in the price of Nabumetone; b) probability of lesion formation with Nabumetone; c) percentage of endoscopically determined lesions that were asymptomatic (silent ulcer rate); d) the price of Misoprostol.

**Estimated benefits used in the economic analysis**
The physician's evaluation demonstrated improvement in 64% of the patients receiving Nabumetone, 55% on Ibuprofen and 63% on Ibuprofen plus Misoprostol. Patients who received Ibuprofen had significantly (P<0.01) more lesions of any size. The adverse events requiring medical interventions were: 5 cases with Nabumetone; 10 cases with Ibuprofen; 20 with Ibuprofen plus Misoprostol.

**Cost results**
All costs related to a three month period. The total cost for Nabumetone-treated patients was $183, compared with $252 for Ibuprofen and $270 for Ibuprofen plus Misoprostol.

**Synthesis of costs and benefits**
Synthesis was not relevant since Nabumetone showed less adverse events and appeared to be cheaper than the alternative treatments. The price of Misoprostol would have to be reduced by 50% to overturn the conclusion or the probability of a lesion greater than 0.5 cm due to Ibuprofen needing treatment be reduced to 31% or less.

**Authors' conclusions**
Nabumetone therapy appeared to show a cost saving in comparison to Ibuprofen and Ibuprofen plus Misoprostol.

**CRD Commentary**
The clinical analysis reported in the study is not detailed enough. In order to judge the quality of the clinical evidence one should refer to the original article. The authors acknowledged the need for studies of the long term effects/adverse impacts of the drugs. The 3 month study period therefore appears too short.

**Bibliographic details**

**Other publications of related interest**

**Indexing Status**
Subject indexing assigned by CRD

**MeSH**
Adult; Aged; Aged, 80 and over; Anti-Inflammatory Agents, Non-Steroidal /therapeutic use; Cost-Benefit Analysis; Female; Ibuprofen /therapeutic use; Male; Misoprostol /therapeutic use; Osteoarthritis /therapy /drug therapy

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