A cost effectiveness analysis of urate lowering drugs in nontophaceous recurrent gouty arthritis

Ferraz M B, O'Brien B

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
Nontophaceous gouty arthritis urate lowering drugs (ULD).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Hypothetical patients with 1-4 recurrent attacks per year.

Setting
Hospital. The economic study was carried out in Ontario, Canada.

Dates to which data relate
Effectiveness data were obtained between 1987-1993. Resource data were obtained between 1984-1993. 1993 prices were used.

Source of effectiveness data
The estimates for final outcomes were derived from a single study.

Link between effectiveness and cost data
It was not stated whether costing was undertaken retrospectively or prospectively. Costing was not undertaken on the same patient sample used in the effectiveness study.

Study sample
Hypothetical study population: no power calculations were stated nor was the hypothetical sample size.

Study design
Prospective cohort study. No follow-up was stated (the analysis was performed for a 12 month recurrent attack period).

Analysis of effectiveness
The analysis of the clinical study was not stated. Primary health outcomes assessed were:

ULD compliance;
adverse effects (AE) due to ULD treatment (stop treatment);
AE due to ULD treatment requiring MD visit;
acute attack, ULD compliant and no AE;
acute attack ULD compliant and AE;
acute attack, ULD noncompliant and no AE;
acute attack, ULD noncompliant and AE;
GI lesion (i.e. any symptomatic gastrointestinal event related to short term NSAID use);
GI lesion requiring hospitalisation (%);
hospitalisation, GI lesion requiring surgery (%);
2nd, 3rd and 4th attack after 1st attack. The final health outcome was measured as number of attacks avoided. No p values were reported.

**Effectiveness results**
ULD compliance was estimated to be 0.70;
the probability of adverse effects (AE) due to ULD treatment (stop treatment) was 0.05;
AE due to ULD treatment requiring MD visit was 0.005;
acute attack, ULD compliant and no AE was 0.05;
acute attack ULD compliant and AE was 0.95;
acute attack, ULD noncompliant and no AE was 0.70;
acute attack, ULD noncompliant and AE was 0.95;
GI lesion (i.e. any symptomatic gastrointestinal event related to short term NSAID use) was 0.01;
GI lesion requiring hospitalisation (%) was 0.05;
hospitalisation, GI lesion requiring surgery (%) was 0.20;
2nd, 3rd and 4th attack after 1st was 0.95.

**Clinical conclusions**
Using urate lowering drugs in the treatment of nontophaceous gouty arthritis can avoid recurrent attacks.

**Modelling**
A decision analysis model was employed in estimating final benefits and costs.
Measure of benefits used in the economic analysis
Benefits were given as acute attacks averted.

Direct costs
Direct health service costs were used including: resource costs based on literature, estimated outpatient health service utilisation costs due to ULD, physician and laboratory costs based on the Ontario Health Insurance Plan schedule 1992, out and in-patient (medical and surgical) costs of gastro-intestinal adverse effects due to NSAIDS based on literature.

Currency
Canadian dollars (Can$).

Sensitivity analysis
One-way sensitivity analysis was carried out varying each probability estimate of effectiveness data to test the final cost of the treatment. Multi-way sensitivity analysis simultaneously varied ULD compliance, AE due to ULD, acute attack with ULD non-compliance and no AE, and GI lesion due to short-term NSAID, in order to test final costs and cost-effectiveness results. Threshold analysis varied the GI lesion probability due to short-term NSAID therapy, and the probability of a compliant ULD patient, until the 2 treatment strategies presented an equal cost.

Estimated benefits used in the economic analysis
Using the baseline scenario probabilities, ULD treatment averted 72% of acute attacks, whereas no ULD treatment averted 5% of acute attacks.

Cost results
The total yearly intervention costs per patient were Can$ 426.27 and Can$ 267.27 for ULD and no ULD treatment respectively (1 attack per year).

Synthesis of costs and benefits
The (baseline) incremental cost-effectiveness ratio ranged from Can$ 99.59 (for the best ULD scenario) to Can$ 489.26 (for the worst ULD scenario) per attack averted.

Authors' conclusions
ULD treatment was cost-effective and cost-saving with 2 or more attacks a year.

CRD Commentary
A concise study of a controversial issue. But the study purported to use the perspective of society but omitted the indirect cost of its (hypothetical) participants. Also, estimates of compliance rates, ULD effectiveness, etc., may not be reflect actual practice. Finally, the authors admitted that death and ULD serious adverse effects were not included (due to the lack of relevant literature), thus slightly weakening the real-world applicability of the analysis.

Source of funding
None stated

Bibliographic details
PubMedID
8587081

Indexing Status
Subject indexing assigned by NLM

MeSH
Allopurinol /economics /therapeutic use; Anti-Inflammatory Agents, Non-Steroidal /economics /therapeutic use; Arthritis, Gouty /drug therapy; Cost-Benefit Analysis /economics; Decision Support Techniques; Gout Suppressants /economics /therapeutic use; Humans; Recurrence

AccessionNumber
21995000708

Date bibliographic record published
31/12/1997

Date abstract record published
31/12/1997