

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.

CRD summary
This study investigated the cost-effectiveness of tolterodine extended-release plus tamsulosin for the treatment of men with lower urinary tract symptoms, associated with benign prostatic hyperplasia and an overactive bladder. The authors concluded that tolterodine plus tamsulosin was cost-effective, over one year, compared with either agent alone or placebo. The methods, analyses and results were mostly comprehensive, but there was uncertainty in the data estimates, and the conclusions should be interpreted cautiously.

Type of economic evaluation
Cost-utility analysis

Study objective
The aim was to examine the costs and health benefits of tolterodine extended-release plus tamsulosin, for the treatment of patients with lower urinary tract symptoms, including overactive bladder. A hypothetical cohort of men aged over 40 years (mean 62.8 years), with benign prostatic hyperplasia, was examined. The men had a total International Prostate Symptoms Score (IPSS) of 12 or more, and were experiencing frequency or urgency urinary incontinence, or both.

Interventions
Tolterodine extended-release plus tamsulosin was compared with tolterodine extended-release alone, tamsulosin alone, and placebo. The doses were 4mg per day for tolterodine, and 0.4mg per day for tamsulosin, for 12 weeks.

Location/setting
UK/primary care.

Methods
Analytical approach:
A decision-analytic model was used to synthesise the evidence from one key randomised trial (Kaplan, et al. 2006, see Other Publications of Related Interest), and other published studies. The time horizon was 12 months. The authors stated that a UK health care system perspective was adopted.

Effectiveness data:
The key clinical outcome was the probability of self-reported treatment benefit. Other outcomes were the micturitions per 24 hours, micturitions at night, urgency episodes per 24 hours, urgency incontinence episodes per 24 hours, and total IPSS. The results of the Tolterodine in Men Efficacy and Safety (TIMES) randomised controlled trial (Kaplan, et al. 2006) were for the clinical outcomes, and for the pathways of the economic decision model. For men who did not respond to treatment (at 12 weeks), half were assumed to receive transurethral resection of the prostate by one-year follow-up.

Monetary benefit and utility valuations:
Urinary incontinence symptom data, from the TIMES trial, were used, in a regression equation, to predict SF-12 scores, based on a large study in the USA, Sweden, and the UK. These SF-12 scores were mapped to EQ-5D scores, to produce the utility scores, using published algorithms.
Measure of benefit:
Quality-adjusted life-years (QALYs) were the summary benefit measure.

Cost data:
The direct medical costs included the drugs and surgery. The unit costs were from the British National Formulary for the drugs, and NHS published estimates for surgery. They were valued in UK £, and adjusted for inflation to 2010, using the UK Consumer Price Index.

Analysis of uncertainty:
One-way sensitivity analyses were performed on the key parameters. Two scenario analyses were tested, by varying the proportions and timing of individuals receiving surgery. A probabilistic sensitivity analysis was undertaken, by varying all uncertain inputs simultaneously, except the regression estimates for the utilities. For this analysis, 1,000 Monte Carlo simulations were used, with gamma or normal distributions for the model inputs. The results were illustrated in a scatterplot and cost-effectiveness acceptability curves.

Results
Over 12 months, the total costs were £550 for tolterodine plus tamsulosin, £328 for tamsulosin, £620 for tolterodine, and £362 for placebo. The mean QALYs were 0.699 for tolterodine plus tamsulosin, 0.677 for tamsulosin, 0.686 for tolterodine, and 0.657 for placebo. It was predicted that 5% of surgical procedures could be avoided over 12 months.

The incremental cost per QALY gained for tolterodine plus tamsulosin versus tamsulosin alone was £10,381 and versus placebo was £4,508. Tolterodine plus tamsulosin dominated tolterodine alone, as the combination was slightly more effective and less costly.

The results of the one-way sensitivity and scenario analyses showed that the main findings were most sensitive to changes in the IPSS after tamsulosin, and after tolterodine plus tamsulosin. The cost-effectiveness acceptability curve indicated that tolterodine plus tamsulosin had the highest likelihood of being cost-effective (about 45%), compared with the other options, at a willingness-to-pay threshold of £10,000, rising to about 63% at a threshold of £30,000.

Authors’ conclusions
The authors concluded that tolterodine plus tamsulosin was cost-effective, over one year, compared with either agent alone or placebo, for men with moderate-to-severe lower urinary tract symptoms, due to benign prostatic hyperplasia and an overactive bladder.

CRD commentary
Interventions:
The treatments were well described, and belonged to different drug classes. The rationale for the selection of the comparators was clear, as they were those included in the pivotal trial. Tamsulosin and tolterodine might not be available as monotherapy or in combination, in other settings.

Effectiveness/benefits:
The clinical effectiveness of the drugs was based on a randomised controlled trial, which was not described in detail. The utility values were from men with lower urinary tract symptoms, which were converted to SF-12 scores, which were mapped to a validated multi-attribute utility instrument (EQ-5D). This mapping process introduced uncertainty into the utility values.

Costs:
The resource quantities and unit costs were clearly presented. The measurement of these resources was briefly described. The impact of side-effects was omitted, which could have underestimated the total costs. The unit costs were from standard national sources. No discounting of the costs was appropriate for the one-year time horizon.

Analysis and results:
The costs and benefits were appropriately synthesised, using an incremental approach. The authors did not analyse the uncertainty in the utility values, due to the excessive computing time required. A one-way univariate analysis could have indicated whether variation in the utility scores significantly impacted on the results. Only selected results of the
sensitivity analyses appear to have been reported. Limitations were acknowledged, such as the indirect measurement of the utility scores; the short time frame (one year) and the suggestion that the cost savings might be eroded over the long term; and some model simplifications for the surgical decisions.

Concluding remarks:
The methods, analyses and results were mostly clear and comprehensive. The conclusions reached by the authors are uncertain due to the lack of robust data for the model.

Funding
Funded by Pfizer Inc, manufacturer of tolterodine and a form of tamsulosin.

Bibliographic details

PubMedID
22332704

DOI
10.3111/13696998.2012.666511

Original Paper URL

Other publications of related interest

Indexing Status
Subject indexing assigned by NLM

MeSH
Adrenergic alpha-Antagonists /therapeutic use; Adult; Cohort Studies; Cost-Benefit Analysis; Drug Therapy, Combination /economics; Great Britain; Humans; Lower Urinary Tract Symptoms /drug therapy /etiology; Male; Middle Aged; Muscarinic Antagonists /therapeutic use; Prostatic Hyperplasia /complications; Quality of Life; State Medicine /economics; Urinary Bladder, Overactive /complications; Urination Disorders /drug therapy

AccessionNumber
22012015387

Date bibliographic record published
06/07/2012

Date abstract record published
27/03/2013