372

Angulo J[1], Trocio J[2], Snedecor S[3], Kvasz M[4], Rejas J[5]

1. *Department of Urology, Hospital Universitario de Getafe, Getafe (Madrid), Spain,* ***2.*** *Pfizer Inc., New York, NY, USA;,* ***3.*** *Pharmerit North America LLC, Bethesda, MD, USA,* ***4.*** *Pfizer Inc Europe, Paris, France,* ***5.*** *Health Economics and Outcomes Research Department, Pfizer, S.L.U., Alcobendas (Madrid), Spain.*

FESOTERODINE IS COST-EFFECTIVE RELATIVE TO TOLTERODINE AND SOLIFENACIN FOR THE TREATMENT OF OVERACTIVE BLADDER WITH INCONTINENCE IN SPAIN: RESULTS OF AN UPDATED ECONOMIC MODEL

Hypothesis / aims of study

Assess the economic value of fesoterodine compared to tolterodine and solifenacin for the treatment of overactive bladder (OAB) with urgency urinary incontinence (UUI) in Spain using a model updated with the most recent clinical data.

Study design, materials and methods

A decision-tree economic model was developed to estimate the 52-week costs and quality-adjusted life years (QALYs) of three cohorts of OAB patients initiating treatment with fesoterodine, tolterodine, or solifenacin. The model was designed to represent typical clinical treatment patterns of individuals initiating antimuscarinic therapy where patients are evaluated for response at regular intervals (weeks 4, 12, and 24). Treatment responders were defined as those who resolve UUI to <1 episode/day. It was assumed that at week 4, non-responders receiving fesoterodine or solifenacin titrate to the higher dose, while responders remain on the lower dose. Because only one dosage is recommended for tolterodine, all patients in the tolterodine arm would remain on treatment regardless of responder status. At week 12, it was also assumed all non-responders discontinue treatment, while responders maintain response until week 52 unless they discontinue for non-efficacy reasons.

Fesoterodine and tolterodine efficacy data were derived from four randomized, double-blind, placebo-controlled, multicenter Phase III/IIIb clinical trials of fesoterodine compared to placebo and/or tolterodine. The clinical trial data were pooled and regression models were created to calculate the proportion of responders from 1) baseline to week 4; 2) week 4 to week 12 after non-response at week 4; and 3) week 4 to week 12 after response at week 4. Solifenacin efficacy data were estimated from a published clinical trial with similar inclusion criteria.

Costs modelled followed the National Health System perspective and included drugs, physician visits, laboratory tests, incontinence pads, and OAB- or incontinence-related comorbidities (fractures, skin infections, urinary tract infections, depression, and nursing home admissions).

Health-related quality of life was measured in the clinical trials by the Overactive Bladder Questionnaire. Responses to this questionnaire were transformed into utility values using a published algorithm. A regression model was then developed to relate daily UUI episodes and micturitions to utility, and then predicted utilities were used to calculate QALYs for responders and non-responders of each treatment. Fractures and depression were assumed to be associated with an additional decrement in utility.

Potential uncertainty surrounding the parameter estimates and their effects on the model outcomes were assessed by probabilistic sensitivity analysis (PSA), in which one or more of the models' parameters is replaced with a value randomly selected from specified ranges reflecting the uncertainty about those parameters. With a large number of these randomly-selected inputs, the model results may be viewed as a distribution itself and summarized with simple descriptive statistics, providing an indication of the uncertainty of the model output and overall conclusions.

The cost-effectiveness of fesoterodine versus tolterodine and solifenacin was summarized using a ratio of increased costs to QALYs gained. This ratio represents the additional costs of fesoterodine relative to tolterodine or solifenacin divided by the additional QALYs gained. Treatments are generally considered cost-effective in Spain if this ratio is less than approximately €30,000.

Results

Estimated outcomes are the proportion of patients remaining on each treatment (i.e., responders) at week 52 and the expected costs and QALYs associated with each treatment (Table). The fesoterodine and solifenacin treatment arms consist of those who have titrated to higher doses as well as those who remained on the initial dose. Fesoterodine was predicted to result in the highest QALYs and associated with the lowest cost. Sensitivity analysis confirmed fesoterodine is cost-effective relative to tolterodine in 79% in the PSA simulations and economically superior to solifenacin in 81% of simulations.

Table. Model outcomes and cost effectiveness ratios at week 52

	Fesoterodine	**Tolterodine**	**Solifenacin**

% Responders	19,48%	17,97%	16,27%
Total QALYs	0,7622	0,7559	0,7517
Total Cost	€2.745	€2.695	€2.841
Antimuscarinic	€450	€337	€412
Medical	€145	€146	€148
Incontinence pads	€362	€380	€401
Comorbidities	€1.788	€1.831	€1.880
Fesoterodine cost/QALY relative to	--	€7.900	Dominant*
*"Dominant" refers to a treatment that is both lower cost and more effective			

Interpretation of results

Fesoterodine was predicted to be the most effective drug with the highest QALYs of the three comparators. Being the most effective in resolving UUI, fesoterodine also had the lowest medical, incontinence pad, and comorbidity costs. Antimuscarinic costs of fesoterodine were higher than tolterodine and solifenacin. However the higher drug costs were completely offset by lower medical costs in the solifenacin arm but not in the tolterodine arm. This means that, overall, fesoterodine was more effective and less costly than solifenacin ("Dominant") but more effective and *more* costly than tolterodine. The additional cost of fesoterodine over tolterodine to gain additional QALYs resulted in a cost/QALY ratio of only €7.900, much less than the typical cost/QALY threshold of €30.000. These results were robust within the plausible rages of the input parameters, where sensitivity analysis confirmed the above conclusions in about 80% of the PSA simulations.

Concluding message

Modelling the latest clinical and economic data suggest fesoterodine has greater efficacy for an acceptable increase in costs compared to tolterodine and is more effective with lower costs compared to solifenacin for the management of OAB with UUI in Spain.

Specify source of funding or grant	**This study was funded by Pfizer, Inc.**
Is this a clinical trial?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**No**
This study did not require ethics committee approval because	**it is a pharmacoeconomic model**
Was the Declaration of Helsinki followed?	**No**
This study did not follow the Declaration of Helsinki in the sense that	**it is a pharmacoeconomic model.**
Was informed consent obtained from the patients?	**No**