Solifenacin in the treatment of overactive bladder syndrome in Italian patients: pharmacoeconomic evaluation
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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.

CRD summary
The objective was to examine the cost-effectiveness of solifenacin compared with tolterodine and placebo for the treatment of overactive bladder syndrome. The authors concluded that solifenacin was a cost-effective treatment from the perspectives of the patient and of the health care system. On the whole, the study was well conducted and satisfactorily presented. The authors’ conclusions appear to be valid.

Type of economic evaluation
Cost-effectiveness analysis, cost-utility analysis

Study objective
The objective was to examine the cost-effectiveness of solifenacin compared with tolterodine and placebo for the treatment of overactive bladder syndrome.

Interventions
The strategies were solifenacin (5mg per day), extended-release tolterodine (4mg per day), placebo, and no intervention.

Location/setting
Italy/primary and secondary care.

Methods
Analytical approach:
The analysis was based on a Markov model with a 52-week time horizon. The authors stated that the perspective of the patient was adopted in the base case. In a secondary analysis, the perspective of the Italian Health Service (IHS) was considered.

Effectiveness data:
The clinical inputs were from selected studies. The efficacy data were from reference clinical trials, where each drug was compared with placebo. These trials were reported to be comparable in their patient populations and endpoint definitions. Where data were available from multiple trials, they were pooled. Some key details on the length of follow-up were reported. The main endpoint was the treatment efficacy, which was measured by the dry rate, episodes of incontinence, micturition frequency, and the use of medical devices for incontinence.

Monetary benefit and utility valuations:
The utility values were from a previous study that used the European Quality of life (EQ-5D) questionnaire to elicit preferences for health states from a sample of 461 Swedish patients, based on two pathology indices: incontinence and frequency. These data were supplemented by a UK population study of 609 patients with overactive bladders.

Measure of benefit:
Quality-adjusted life-years (QALYs) and the number of patients, who were free from incontinence, were the summary benefit measures.

Cost data:
The economic analysis included those costs associated with drugs, incontinence pads, medical examinations (by general practitioners and specialists), creams and other local treatment, productivity losses, and falls or fractures. Drug costs were calculated using prices derived from the national formulary and doses used in the reference trials. The costs of pads were based on average prices from pharmacies. The costs of medical examinations were based on official IHS sources. Other costs were from published studies. All costs were in Euros (EUR) and the price year was not explicitly reported.

Analysis of uncertainty:
A series of one-way sensitivity analyses was carried out and the key inputs were varied by ±20% of the baseline value. An alternative scenario considered the subgroup of patients who responded to treatment and the data for this analysis were from the Solifenacin (flexible dosing with 5mg and 10mg doses) OD and Tolterodine ER 4mg OD as an Active comparator in a Randomised (STAR) trial. The perspective of the IHS was also considered, assuming the reimbursement of drug and pad costs, with a 50% reduction in drug costs in patients with a satisfactory outcome.

Results
In a simulated population of 1,403,343 overactive bladder patients eligible for pharmacological therapy, the number of patients who became free from incontinence was 289,878 with solifenacin, 240,746 with tolterodine, 135,584 with placebo, and none without treatment. The expected QALYs per patient were 0.810 with solifenacin, 0.800 with tolterodine, 0.776 with placebo, and 0.740 without treatment. The total costs per patient were EUR 843.08 with solifenacin, EUR 988.64 with tolterodine, EUR 204.27 with placebo, and EUR 305.96 without treatment.

In the incremental analysis, solifenacin dominated tolterodine, as it was more effective and less expensive. The incremental cost per patient free from incontinence with solifenacin was EUR 5,810.13 over placebo and EUR 2,600.26 over no treatment. With tolterodine it was EUR 10,467.10 over placebo and EUR 3,979.42 over no treatment. The incremental cost per QALY gained with solifenacin was EUR 18,612.95 over placebo and EUR 7,634.15 over no treatment. With tolterodine it was EUR 33,309.27 over placebo and EUR 11,457.30 over no treatment.

The deterministic sensitivity analysis showed that these findings were robust. In the scenario in which patients responding to solifenacin decided to continue therapy, more favourable cost-effectiveness ratios were obtained. When assuming the IHS perspective, both therapies were highly cost-effective ranging from EUR 600 to EUR 2,500 per QALY, and the cost to the IHS for the full eligible overactive bladder patient population would be about EUR 23 million.

Authors' conclusions
The authors concluded that solifenacin was a cost-effective treatment compared with tolterodine or no intervention, from the perspective of the patient and of the health care system.

CRD commentary
Interventions:
The rationale for the selection of the comparators was clear in that the new anticholinergic solifenacin was compared against a previously used drug and against no intervention. Placebo was considered as it was the common comparator in the reference trials of the two drugs. Since patients in the placebo arm of the trials had a benefit due to the “placebo effect”, no treatment was also compared and the efficacy was assumed to be zero. The authors stated that it was likely that the real efficacy for patients not receiving drug treatments would be between these two options.

Effectiveness/benefits:
The clinical evidence came from selected published sources, with no systematic review reported. Drug efficacy rates were from reference trials, which are generally considered to be a valid source of evidence. The authors stated that these trials were comparable at baseline, which enhances the validity of the analysis despite the lack of a head-to-head clinical trial. Some key details of the methods of these trials were reported. The uncertainty underlying some estimates was appropriately investigated in the sensitivity analysis. The two benefit measures were valid as the number of patients free from incontinence was of clinical relevance, while QALYs were an appropriate measure to capture the impact of disease on quality of life, which is important for overactive bladder patients. Appropriately, no effect of disease on
mortality was considered.

Costs:
The analysis of costs was valid. The two perspectives provided interesting results that reflected the current situation, in which patients bore almost all costs of disease and treatment, and a hypothetical scenario, in which the IHS partially reimbursed these costs. Some key details on the unit costs were provided, with only limited information on resource use. The data sources were clearly presented for almost all items and the costs were derived from official Italian databases and published evidence. The price year was not explicitly reported, which will hinder reflation exercises for other time periods. The cost estimates were treated deterministically, but the impact of variations in them was tested in the sensitivity analysis.

Analysis and results:
The analytic approach, of a simple simulation, was appropriate and was clearly presented. The costs and benefits were appropriately reported and synthesised in an incremental analysis. No discounting of costs and benefits was applied and this was appropriate given that all the clinical and economic consequences occurred within one year. The issue of uncertainty was appropriately investigated and the findings were clearly illustrated and discussed. The key drivers of the study were highlighted.

Concluding remarks:
On the whole, the study was well conducted and satisfactorily presented. The authors’ conclusions appear to be valid.

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