INTRODUCTION

- Detractive Bladder (DB) is a highly prevalent condition associated with urinary urgency, often accompanied by frequency, urgency incontinence and nocturia. 
- It may be managed with a range of therapies (e.g. bladder training, electrical stimulation, surgery and pharmacological agents) that are effective in reducing episodes of urgency and incontinence, although response is suboptimal in a proportion of patients.
- Antimuscarinic drugs are also associated with urological side effects such as dry mouth, blurred vision and constipation that affect persistence on therapy.

METHODS

Model design

- The model was developed to simulate the pharmacological, disease course and complications in hypothetical cohort of patients with OAB.
- The model included five distinctive stages, which were characterized by symptoms, i.e., OAB symptomatic and non-symptomatic. Each symptomatic stage was divided into subgroups based on the severity level of symptoms (Table 1).
- Treatment strategies were defined to manage OAB and were summarized in Figure 1. The transition probabilities between symptom levels were estimated using data from the SCORPIO trial (Table 2).
- Model inputs were derived from the literature and were based on a probabilistic sensitivity analysis, as shown in Figure 2. The results of the deterministic sensitivity analyses comparing mirabegron 50 mg versus antimuscarinic agents are also associated with rates of dry mouth similar to those with placebo.

OBJECTIVE

- To evaluate the cost-effectiveness of oral mirabegron 50 mg in comparison with antimuscarinic agents currently available for the treatment of adult patients with OAB from a UK National Health Service (NHS) perspective.

RESULTS

- Deterministic sensitivity analysis

  The results of the deterministic sensitivity analysis comparing mirabegron 50 mg versus tolterodine 4 mg are shown in Figure 3. The mirabegron strategy was cost-effective as compared with the tolterodine strategy in all scenarios, except for transition probabilities between incontinence symptom levels for mirabegron.

- Probabilistic sensitivity analysis

  The probabilistic sensitivity analysis cost-effectiveness acceptability curve for mirabegron compared with tolterodine is shown in Figure 4.

- Sensitivity analysis of the calibration method

  The impact of uncertainty on the calibration method is shown in Table 7. The results indicate that the model is robust to changes in the calibration factor range of 0.6-0.9.

- Sensitivity analysis of the parameter values of mirabegron vs tolterodine

  The number of incremental QALYs gained varied moderately, but the resulting ICERs for mirabegron 50 mg versus tolterodine 4 mg appeared similar and were below the threshold of £20,000/QALY gained.

CONCLUSIONS

- From a UK NHS perspective, treatment with mirabegron 50 mg appears to be a cost-effective strategy compared with antimuscarinic agents.

REFERENCES

19. Age UK Incontinence. Available at: http://www.ageukincontinence.co.uk.

ACKNOWLEDGMENTS

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Table 1. Symptom severity levels: definitions and distribution of patients at baseline

<table>
<thead>
<tr>
<th>Symptom severity level</th>
<th>Definition</th>
<th>Total proportion of patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 (mild)</td>
<td>0-1 episode/day</td>
<td>20</td>
</tr>
<tr>
<td>Level 2 (moderate)</td>
<td>2-15 episodes/day</td>
<td>80</td>
</tr>
<tr>
<td>Level 3 (severe)</td>
<td>&gt;15 episodes/day</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 2. Utility increments by symptom severity level

<table>
<thead>
<tr>
<th>Symptom severity level</th>
<th>Utility increment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>0.656</td>
</tr>
<tr>
<td>Level 2</td>
<td>0.651</td>
</tr>
<tr>
<td>Level 3</td>
<td>0.636</td>
</tr>
<tr>
<td>Level 4</td>
<td>0.621</td>
</tr>
</tbody>
</table>

Table 3. Probability of AEs

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Probability of AE at 12 weeks (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirabegron 50 mg</td>
<td>3.759</td>
</tr>
<tr>
<td>Tolterodine ER 4 mg</td>
<td>3.758</td>
</tr>
</tbody>
</table>

Table 4. Probabilities of switch and discontinuation

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Probability of switch</th>
<th>Probability of discontinuation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mirabegron 50 mg</td>
<td>0.00521</td>
<td>0.00504</td>
</tr>
<tr>
<td>Tolterodine ER 4 mg</td>
<td>0.0128</td>
<td>0.00034</td>
</tr>
</tbody>
</table>

Figure 1. Treatment pathway

Figure 2. Transition probabilities between symptom levels for mirabegron 50 mg and tolterodine 4 mg.

Figure 3. Probabilistic sensitivity analysis cost-effectiveness acceptability curve for mirabegron compared with tolterodine 4 mg.

Figure 4. Results of the deterministic sensitivity analysis comparing mirabegron vs tolterodine 4 mg.

Figure 5. Transition probabilities between symptom levels for mirabegron 50 mg and tolterodine 4 mg.

Figure 6. Sensitivity analysis of the calibration method.