BACKGROUND

- Patients with OAB without an adequate response to first-line treatments (eg, anticholinergics and behavioral therapy) may be treated with higher intervention therapies, including: 
  - OnabotulinumtoxinA, 
  - PTNS, 
  - SNS

OBJECTIVE

To assess the cost-effectiveness of onabotulinumtoxinA (onabotA) for the treatment of OAB versus best supportive care (BSC) and PTNS and SNS in the management of refractory idiopathic UIEs from a US payer perspective.

METHODS

A Markov health-state transition model was developed with 3-month cycles and health states based on the number of UIEs (Figure 1). Costs were discounted at 3% per year. The analysis included a 10-year time horizon (marketScan® data). A 5-year time horizon was used for cost-effectiveness. All monetary values were in USD.

- Patients were treated with either BSC, onabotA 100U, PTNS, or SNS. 
  - OnabotA was defined as onabotulinumtoxinA, with data from clinical trial data and a long-term extension study.
  - PTNS and SNS were defined as percutaneous tibial nerve stimulation (PTNS) and sacral nerve stimulation (SNS), respectively. 
  - These 4 health states were compared to BSC, with restrictions on the potential for retreatment.
  - OnabotA patients discontinued therapy if and when an adequate response (ie, ≤2 UIEs) was achieved or if a maximum of 10 treatments were provided.
  - PTNS patients discontinued therapy within the first 3 months or at the end of 10 treatments, whichever came first.
  - SNS patients discontinued therapy either after 1 month of treatment or after 10 treatments, whichever occurred first.

- Sensitivity analyses were conducted by state, at a rate of 5%, and to a maximum of 10 treatments.

- Those who discontinued onabotA, PTNS, or SNS were reinserted into the model at the state of the last treatment.

- A discount rate of 3% per year was applied to costs and outcomes.

- OnabotulinumtoxinA, overactive bladder (OAB), onabotulinumtoxinA (onabotA), PTNS, percutaneous tibial nerve stimulation, UIEs, UIE.

Figure 1. Model Diagram and Health States

- Table 2: Sensitivity Analyses

<table>
<thead>
<tr>
<th>Sensitivity Analyses</th>
<th>BSC vs OnabotA</th>
<th>BSC vs PTNS</th>
<th>BSC vs SNS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base-case Analysis</td>
<td>$-13,601 0.035</td>
<td>$13,052 0.008</td>
<td>$15,052 0.008</td>
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<tr>
<td>Parameter uncertainty</td>
<td>$31,614 0.121</td>
<td>$72,248 0.037</td>
<td>$132,918 0.013</td>
</tr>
</tbody>
</table>

Table 1: Key Resource Utilization, Cost, and Ql. Inputs for the Model

- Patients with OAB without an adequate response to first-line treatment may be treated with higher intervention therapies, including:
  - OnabotulinumtoxinA,
  - PTNS,
  - SNS

- The model did not assess structural uncertainty. Different patient pathways and disease progression through model health states were introduced heterogeneity and variability across treatments and diseases.

- Both PTNS and SNS were assumed to be effective and not taken into account in the sensitivity analyses.

- The model did not assess structural uncertainty. Different patient pathways and disease progression through model health states were not taken into account in the sensitivity analyses.

- This study was funded by Allergan plc, but were at the time the study was conducted. This study was funded by Allergan plc, but were at the time the study was conducted.

- No head-to-head data were available for any of the comparators and PTNS was not used in head-to-head studies.

- Parameter uncertainty was investigated through deterministic one-way sensitivity analyses (BSC and PTNS) and probabilistic sensitivity analyses (onabotA).

- Expected QALYs and costs for each treatment were 10,000, 25,000, 50,000, 100,000, 150,000, and 200,000.

- The model was presented at the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) 21st Annual International Meeting, May 21-25, 2016, Washington, DC.

- All the authors are employees of Allergan plc. ZH and AY are no longer employees of Allergan plc.

DISCLOSURES

- All authors report no conflicts of interest.

- The model used a sample size of 10,000, 25,000, 50,000, 100,000, 150,000, and 200,000.

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