Comparative Cost Effectiveness of Dapagliflozin and Empagliflozin in Heart Failure with Reduced Ejection Fraction

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Objectives

• Sodium-glucose transport protein 2 (SGLT-2) inhibitor use among patients with heart failure with reduced ejection fraction (HFrEF) leads to decreased hospitalizations and reduced mortality.

• Two SGLT-2 inhibitors in particular, dapagliflozin and empagliflozin, have been widely examined for heart failure benefit.

• Despite demonstrated benefit with SGLT-2 therapy, no clinical trials directly comparing performance of these drugs exist.

• The objective of this project was to compare the cost-effectiveness of two SGLT-2 inhibitors, dapagliflozin and empagliflozin, for the treatment of HFrEF.

Methods

• We developed a Markov model to simulate a cohort of newly diagnosed HFrEF patients across five years using TreeAge Pro software

• Probabilities of events were gathered from the literature and costs were gathered from Red Book

• Outcomes included hospitalization, mortality, costs, quality-adjusted life years (QALY), and the incremental cost-effectiveness ratio (ICER)

• We conducted one-way sensitivity analyses using tornado diagrams to probe findings.

Results

• Treatment of HFrEF with dapagliflozin had greater utility and higher total total cost than treatment with empagliflozin.

Table 1. Cost-effectiveness Model Results

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Total Costs (USD)</th>
<th>Utility (QALY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Empagliflozin 10 mg Daily</td>
<td>102,836.95</td>
<td>5.31</td>
</tr>
<tr>
<td>Dapagliflozin 10 mg Daily</td>
<td>117,487.02</td>
<td>5.67</td>
</tr>
<tr>
<td>Incremental Values</td>
<td>14,650.08</td>
<td>0.36</td>
</tr>
<tr>
<td>ICER</td>
<td>40,834.99</td>
<td></td>
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</tbody>
</table>

• The tornado diagram revealed that the model was sensitive to cost of both drugs at ± 15% base cost.

Conclusions

• Despite the lack of a clearly dominant HFrEF SGLT-2 treatment strategy, dapagliflozin appeared more cost-effective than empagliflozin considering a willingness to pay threshold of 50,000 USD. However, this finding is sensitive to cost of both treatments.

• Further studies, considering additional medications and using potentially more complex modeling, should be performed to assess cost-effectiveness of SGLT-2 inhibitors for treatment of HFrEF.

References

