Objectives
- To determine preferences of injection-naive patients with type 2 diabetes mellitus (T2DM) for features of glucagon-like peptide-1 receptor agonist (GLP-1RA) injections using a discrete-choice experiment (DCE)
- To test for effect of injection frequency on patient preferences

Materials and Methods

Study Population
- Inclusion criteria:
  - Age 18 years or older
  - Current treatment with GLP-1RA, metformin, or a combination of these medications
  - Eligible for T2DM when choosing among hypothetical treatments for T2DM
- Exclusion criteria:
  - Taking a GLP-1RA or metformin for T2DM
  - Having a history of allergy to GLP-1RA

Survey Instrument
- A web-based survey instrument was developed to administer a DCE following good research practices
- DCEs, also known as choice-format conjoint analyses, are valid and reliable approaches for quantifying preferences for health interventions
- DCEs provide data on how respondents compare choices between treatment options, defined in terms of general treatment attributes (dimensions) and the type of each attribute (levels)
- Survey instrument validation included open-ended review of draft survey with 10 patients with T2DM in the United States
- After reviewing patient instructional materials for the survey, 39 patients completed the survey
- Randomly assigned each patient to a block of 10 questions, with each block contained one question in each of the four attributes
- Each attribute was described in detail in the survey instrument, and pictures were used to present each level in the chosen question
- The pain levels describing the two needles were inferred by a recent study on reported injection pain intensity
- Each patient was presented with 10 questions, each including a choice between two groups of designed hypothetical medications

An experimental design was used to create the hypothetical medication profiles and profile groups included in each choice question.

Table 1. Attributes and Levels for the Choice Questions

<table>
<thead>
<tr>
<th>Attribute Levels</th>
<th>Injections</th>
<th>(N = 184)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection Device</td>
<td>Single-use pen</td>
<td>53.8%</td>
</tr>
<tr>
<td>Needle Size</td>
<td>Shorter and thinner needle</td>
<td>91.7%</td>
</tr>
<tr>
<td>Storage/Freeze</td>
<td>Refrigerator</td>
<td>61.0%</td>
</tr>
<tr>
<td>Injection Frequency</td>
<td>Daily</td>
<td>71.7%</td>
</tr>
</tbody>
</table>

Results

Table 3. Predicted Choice Probabilities for Identical Profiles, by Injection Frequency

<table>
<thead>
<tr>
<th>Injection Device</th>
<th>Need to Store to Refrigerator</th>
<th>Need to Store to Semirefrigerator</th>
<th>Need to Store to Semirefrigerator Only</th>
<th>Need to Store to Room Temperature</th>
<th>Need to Store to Room Temperature Only</th>
<th>Predicted Choice Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-use pen</td>
<td>0.985</td>
<td>0.015</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>Daily = 98.5% Weekly = 1.5%</td>
</tr>
<tr>
<td>Single-use pen</td>
<td>0.701</td>
<td>0.299</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>Daily = 70.1% Weekly = 29.9%</td>
</tr>
</tbody>
</table>

Relative Importance

The relative importance of changing from daily to weekly injections and the relative importance of changing from a daily multiple-use pen to a weekly multiple-use pen had a relative importance of approximately 4.7

Preferences for all other attributes depended on injection frequency

Conclusion

The most important feature of interest for T2DM patients choosing among hypothetical treatments was injection frequency; patients preferred weekly injections

Disclosure
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References