**BACKGROUND**

- Glucagon-like peptide 1 (GLP-1) and glucose-dependent insulinotropic polypeptide (GIP) are both insulin-dependent targets for treatment of type 2 diabetes.
- Studies show agonism of such targets reduces hemoglobin A1c in addition to cardiovascular risk and increased renoprotective properties.
- Newer research has proposed weight benefit.
- A shortage of this group of medications began in March 2022 due to increased use for cardiorenal or weight effects and misuse via improper prescribing.1

**RESULTS**

- Most patients were initially on dulaglutide (58%)
- Most patients received medication from a retail setting (n = 71%)

**METHODS**

- **Design:** Retrospective chart review of patients seen by pharmacists in four family medicine clinics
- **Primary Outcome:** Change in hemoglobin A1c
  - **Inclusion Criteria**
    - 18-89 years of age
    - Diagnosis of type 2 diabetes
    - On a GLP-1 or GIP/GLP-1 from 4/1/22 to 8/31/23
    - Documented "shortage" or "supply issue"
    - HbA1c before shortage and 3-6 months after
  - **Exclusion Criteria**
    - Diagnosis of type 1 diabetes
    - Pregnancy
    - Lack of prescribed GIP/GLP-1 or GLP-1 agent
- **Statistical Analysis:** Performed using SPSS 28.0 (IBM Corp., Armonk, NY)

**CONCLUSION**

- **Limitations:**
  - No dose acknowledgement/guidelines
  - Variability in drawing of A1c level
  - Confounding variables (e.g. change in eating habits, exercise, etc.)
  - Small sample size, human error
- **Conclusions:**
  - Around half of the patients who were affected by the shortage/supply issue did see a worsening in their HbA1c despite lack of significance. However, those who underwent intervention 1 were significantly more likely to experience worsening of their HbA1c.

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### Interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Type of Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Switch to a different once-weekly GLP-1 or GIP/GLP-1</td>
</tr>
<tr>
<td>2</td>
<td>Switch to a different daily GLP-1 injection</td>
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<tr>
<td>3</td>
<td>Switch to oral GLP-1</td>
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<tr>
<td>4</td>
<td>Dose increase of current GLP-1 or GIP/GLP-1</td>
</tr>
<tr>
<td>5</td>
<td>Dose decrease of current GLP-1 or GIP/GLP-1</td>
</tr>
<tr>
<td>6</td>
<td>GLP-1 or GIP/GLP-1 held and current medications including insulin titrated</td>
</tr>
<tr>
<td>7</td>
<td>GLP-1 or GIP/GLP-1 held and current medications excluding insulin titrated</td>
</tr>
<tr>
<td>8</td>
<td>GLP-1 or GIP/GLP-1 held and addition of non-insulin medication</td>
</tr>
<tr>
<td>9</td>
<td>GLP-1 or GIP/GLP-1 held and addition of insulin medication</td>
</tr>
</tbody>
</table>

### Diabetes Outcome

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Number of Patients (N)</th>
<th>1st A1c</th>
<th>2nd A1c</th>
<th>A1c Improvement</th>
<th>Mean ± SD</th>
<th>One-sided p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1c Improvement</td>
<td>12</td>
<td>7.767±1.26</td>
<td>7.742±1.43</td>
<td>Increase</td>
<td>0.921</td>
<td>0.012</td>
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<td>A1c Worsening</td>
<td>6</td>
<td></td>
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</tr>
</tbody>
</table>

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**References**

1. Southern Illinois University Edwardsville 2. HSHS Medical Group