Controller Adherence and Albuterol Use among Adult Asthma Patients On Once or Twice Daily ICS/LABA Therapy Using Sensor Technology

Richard Y Stanford, PharmD, MS,* Carline M Averett, MS, SM, Phaedra T Johnson, MS, Erin Byspans, MS, Maureen Carlyle, MPH

Aims

- Successful asthma management depends, in part, on adherence to and proper use of prescribed inhaler therapies.
- Objective: Evaluate adherence and proper use of medical devices, including remote inhaler sensors, to better understand adherence patterns among patients and identify areas for improvement.
- Objective: To examine adherence to controller medication and device use among adult patients with asthma during their first 6 months of FF/VI Ellipta or FF/VI Diskus therapy, using sensor technology.

Methods

- Multi-phase longitudinal observational research study conducted.
- Phase 1: FF/VI Diskus from 1 November 2015 to 30 October 2016.
- Phase 2: FF/VI Ellipta from 1 November 2016 to 30 October 2017.
- Eligible patients who met the following criteria:
  - 18 years of age at time of identification
  - Pharmacy claims for FF/VI Diskus during the most recent 6 months of the claims identification period (Phase 1) or pharmacy claims for FF/VI Ellipta during the most recent 6 months of the claims identification period (Phase 2)
  - Pharmacy claims for an appropriate controller MDI or other controller medication during the most recent 6 months of the claims identification period
  - Continuous and current enrollment in Optum affiliated health plans during the 12-month identification period
  - No COPD diagnosis code during the 12-month identification period

Results

Table 1. Demographic Characteristics

<table>
<thead>
<tr>
<th>Age, Gender (SD) Years</th>
<th>phases</th>
<th>M (SD)</th>
<th>( \text{FF/VI Diskus} (n = 241) )</th>
<th>( \text{FF/VI Ellipta} (n = 127) )</th>
</tr>
</thead>
<tbody>
<tr>
<td>18–29</td>
<td></td>
<td>21.90</td>
<td>21.10</td>
<td>21.74</td>
</tr>
<tr>
<td>30–49</td>
<td></td>
<td>48.51</td>
<td>49.06</td>
<td>49.18</td>
</tr>
<tr>
<td>50–64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>65+</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Survey-Based Outcomes over 6-Month Follow-Up

- Mean ACT score change from baseline and percent of patients with improvement in ACT score ≥ 3 points or a change ≥ 20 points overall are reported in Figure 3, with 28.6% showing improvement with FF/VI Diskus and 27.4% showing improvement with FF/VI Ellipta.

Conclusions

- This study found that asthma patients using FF/VI Diskus with sensors were more likely to be adherent to their controller medications for approximately one-third of the follow-up period and on average used albuterol MDI more than once a day. Patients using once-daily FF/VI Ellipta with sensors were more likely to be adherent to their controller medications for more than 90% of the follow-up period and used albuterol MDI less than once a day.
- Limitations of this study are rooted in the survey design, as all surveys may be subject to sampling error, coverage error, and measurement error. Participants in this study were selected from among those with commercial coverage in the U.S. national health plan, which may not be representative of a sample of all asthma patients.

Acknowledgements

- FFS and FF/VI are GlaxoSmithKline products. PJ, BI, and MM, are employees of Optum, a consulting company that has received research funds from GSK.
- The study was funded by GlaxoSmithKline (2018-315405-18070).