The objective of this study was to evaluate the association between adherence to fixed-dose ICS/LABAs and outcomes among patients with asthma.

Methods

The retrospective observational study was conducted using the IQVIA PharMetrics Plus database in asthma patients initiating fixed-dose ICS/LABA between January 1, 2014 and March 31, 2019. The index date was the first ICS/LABA dispensing date. The 12-month pre-index period was the baseline, and patients had to fill ≥10 PDC (<0.80) post-index doses.

Results

A total of 50,037 patients met all study eligibility criteria. Baseline patient characteristics, overall and stratified by adherence in the first and second quarters of follow-up, are shown in Table 1. Overall, mean age of all patients was 45.3 years, 64% were female, and mean follow-up time was 23.3 months.

Table 1. Baseline Demographics and Clinical Characteristics

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>All Patients</th>
<th>PDC from 1-3 months</th>
<th>PDC from 4-6 months</th>
<th>P-value Adjusted RR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation period (months), mean (SD)</td>
<td>9 (N = 50,037)</td>
<td>9 (N = 51,402)</td>
<td>9 (N = 48,642)</td>
<td>0.824 (0.638, 1.063) 0.136</td>
</tr>
<tr>
<td>Overall exacerbations</td>
<td>2.02 (0.996, 3.80) 0.019 2.02 (0.992, 3.99) 0.017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthma-related HRU, NPP</td>
<td>2.02 (0.996, 3.80) 0.019 2.02 (0.992, 3.99) 0.017</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adherent (PDC ≥0.80)</td>
<td>0.991 (0.859, 1.151) 0.991 (0.859, 1.151)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-adherent (PDC &lt;0.80)</td>
<td>0.991 (0.859, 1.151) 0.991 (0.859, 1.151)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Compared to non-adherent patients, adherent patients were significantly less likely to experience any asthma exacerbation or severe exacerbation; and had significantly lower rates of severe exacerbations, but similar rates of overall exacerbations (Table 2).

Table 2. Impact of ICS/LABA Adherence on Asthma Exacerbations

| Adherent (PDC ≥0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |
| Non-adherent (PDC <0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |

Adherent patients were significantly less likely to have an ED visit per quarter than non-adherent patients, and had significantly lower costs of hospitalization per 20% increase in adherence, though the difference between adherent and non-adherent patients was not significant. However, adherent patients were significantly more likely to have an OP visit per 20% increase in adherence, though the difference between adherent and non-adherent patients was not significant only for ED costs (Table 3).

Table 3. Impact of ICS/LABA Adherence on Asthma-related HRU

| Adherent (PDC ≥0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |
| Non-adherent (PDC <0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |

Study Outcomes

- Asthma-related HRU, PPD
- 2-tailed test
- Number of visits
- Adjusted OR
- 95% CI
- p-value
- Total medical hospitalization, and ED visit costs were significantly lower per 20% increase in adherence, though the difference between adherent and non-adherent patients was significant only for ED costs (Table 5).

Table 5. Impact of ICS/LABA Adherence on Asthma-related Costs 1

| Adherent (PDC ≥0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |
| Non-adherent (PDC <0.80) | 0.991 (0.859, 1.151) 0.991 (0.859, 1.151) |

Conclusions

Real-world adherence to ICS/LABAs among asthma patients was associated with reduced overall and severe exacerbations, rescue medication use, healthcare resource use, and medical costs.

References


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