Rescue medication use in patients with chronic obstructive pulmonary disease receiving umecindinium/vilanterol versus tiotropium bromide/olodaterol in England

Poster No. 2118

Aims

Rescue medication use is associated with other clinically important outcomes in COPD trials including functional assessments (through FEV1), patient-centred outcomes assessing health status (SGRQ score), dyspnoea (TDI) and annualized rate of exacerbations1. No comparative real-world effectiveness studies have been conducted in the UK population comparing rescue medication use for the single-inhaler long-acting muscarinic antagonist/long-acting β2-agonist (LAMA/LABA) therapies umecindinium/vilanterol (UMEC/VII) and tiotropium bromide/olodaterol (TIO/OLO). A previous crossover randomised study demonstrated a significant increase in trough forced expiratory volume in 1 second (FEV1) and a significant decrease in rescue medication for UMEC/VII compared with TIO/OLO.2 This analysis compared the real-world effectiveness of UMEC/VII versus TIO/OLO on rescue medication use among patients with COPD newly initiating LAMALABA therapy in England.

Methods

Aim of the study

Rescue medication use among patients with COPD newly initiating LAMALABA therapy in England.

Study design

Anonymised electronic health record database of primary care interactions in England. Contains details on all inpatient admissions, outpatient appointments and emergency department attendances at National Health Service hospitals in England. CPRD, Clinical Practice Research Datalink; FVC, forced vital capacity; GP, general practitioner; HES, Hospital Episode Statistics; ICS, inhaled corticosteroid; IPTW, inverse probability of treatment weights; SAMA, short-acting muscarinic antagonist.

Exclusion criteria

• Inclusion or exclusion of COPD with a mild state, with no exacerbations.
• Prescription for both UMEC/VII and TIO/OLO, or concomitant use of ICS at any time.
• ≥12 months of pre-index continuous registration with a GP
• ≥1 diagnostic code of COPD at ≥35 years of age

Cohort

Patients were classified into treatment groups at index date.

Statistical analysis

1. The study was powered to demonstrate superiority on the mean rescue medication prescriptions, with the hypothesis that UMEC/VII patients would have fewer prescriptions of rescue medication on average compared with patients initiating TIO/OLO. Superiority was defined as non-inferiority over TIO/OLO regarding mean rescue medication prescriptions over 12 months.

2. A secondary analysis was performed using an IPTW model to evaluate non-inferiority over TIO/OLO regarding mean rescue medication prescriptions over 12 months. If superiority was not demonstrated, UMEC/VII patients would have fewer prescriptions of rescue medication on average compared with patients initiating TIO/OLO.

Results

In total, 6,536 and 2,067 incident users of UMEC/VII and TIO/OLO were identified, respectively; patient characteristics are detailed in Table 1.

Table 1. Baseline characteristics of patients during the 12-month pre-index period

<table>
<thead>
<tr>
<th></th>
<th>UMEC/VII (n=6,536)</th>
<th>TIO/OLO (n=2,067)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at index, years, mean (SD)</td>
<td>69.5 (10.6)</td>
<td>70.0 (10.3)</td>
</tr>
<tr>
<td>Female, n (%)</td>
<td>2,857 (43.7)</td>
<td>973 (47.1)</td>
</tr>
<tr>
<td>BMI, mean (SD)</td>
<td>27.2 (6.2)</td>
<td>27.3 (6.4)</td>
</tr>
<tr>
<td>% smoking, n (%)</td>
<td>61.3 (16.9)</td>
<td>61.4 (17.1)</td>
</tr>
</tbody>
</table>

Table 2. Baseline characteristics of patients during the 12-month post-index period

<table>
<thead>
<tr>
<th></th>
<th>UMEC/VII</th>
<th>TIO/OLO</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOLD 2019 grade, n (%)</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>A</td>
<td>2,058 (42.1)</td>
<td>876 (40.9)</td>
</tr>
<tr>
<td>B</td>
<td>2,249 (36.7)</td>
<td>706 (32.8)</td>
</tr>
<tr>
<td>C</td>
<td>652 (10.7)</td>
<td>194 (10.1)</td>
</tr>
<tr>
<td>D</td>
<td>618 (10.2)</td>
<td>238 (12.4)</td>
</tr>
</tbody>
</table>

Patients indexed on UMEC/VII had significantly fewer rescue medication prescriptions versus TIO/OLO in the 12 months following treatment initiation in the weighted comparison and unweighted results were similar (Figure 1, Figure 2).

The difference observed for the rescue medication in the weighted analysis for this study (−0.57) was higher than the observation in a US real-world study for a similar cohort. The difference observed for the rescue medication in the weighted analysis for this study (−0.57) was higher than the observation in a US real-world study for a similar cohort.

Figure 1. Mean number of rescue medication prescriptions per patient newly initiating UMEC/VII versus TIO/OLO in the 12 months following treatment initiation

Figure 2. Treatment differences for rescue medication prescriptions outcome

Study limitations:

Frequency of rescue medication prescriptions may not directly correlate with the frequency of rescue medication use for patients with worsened symptoms. Uncontrolled confounding is a limitation of the PS method, though this is expected to be minimal with the chosen data additional. Additionally, CPRD-Aurum data covers <10% of UK practices, but sample population is considered highly representative of whole UK population.

Conclusions

In England, patients with COPD newly prescribed LAMALABA, UMEC/VII demonstrated superiority over TIO/OLO regarding mean rescue medication prescriptions over 12 months from initiation. This finding is in-keeping with results from a previous randomised crossover study.

Reduced rescue medication use may suggest improvements in symptoms with UMEC/VII compared with TIO/OLO.

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Disclosures

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References


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