Impact of Umeclidinium/Vilanterol (UMEC/VI) Versus Tiotropium (TIO), Fluticasone Propionate/Salmeterol (FP/SAL), and Budesonide/Formoterol (B/F) on Time-to-First Severe Exacerbation Among Patients with Chronic Obstructive Pulmonary Disease with High Comorbidities and High Costs

Poster No. P1466

Aims

- The most costly and vulnerable patients with COPD are those with a high number of comorbidities and, consequently, high healthcare costs. Disease control is particularly important in this group to reduce burden on patients, as well as the healthcare system.
- Controlling severe exacerbations resulting in hospitalization, due to the impact on cost and disease burden, is key.
- This study examined the time-to-first (TF) and rate of severe exacerbations among patients with high comorbidities and costs in three identical studies comparing UMEC/VI with TIO (Study #1), FP/SAL (Study #2), and B/F (Study #3).

Methods

Study Design

A retrospective cohort study was conducted identifying patients from Optum’s de-identified Clinformatics Data Mart Database initiating UMEC/VI, TIO, FP/SAL, or B/F from January 1, 2014 to December 31, 2016, with the earliest defined as the index date. Propensity score matching was used to balance cohorts.

Key Inclusion Criteria

- ≥1 pharmacy claim for ICS-, LABA-, or LAMA-containing controller
- ≥1 pharmacy claim for a non-index controller medication on index date
- Defined as ≥1 primary or secondary diagnosis of COPD during 1-year pre-index or on the index date
- ≥12 months continuous enrolment prior to the index date (i.e., pre-index period)
- Patients initiated on UMEC/VI had significantly lower risk of future severe exacerbations.

Key Exclusion Criteria

- ≥20 years of age as of index date
- ≥2 months continuous enrolment prior to the index date (i.e., pre-index period) or on the index date
- ≥1 primary or secondary diagnosis of COPD during 1-year pre-index or on the index date

Table 1. Matched Cohorts’ Demographic and Clinical Baseline Data

<table>
<thead>
<tr>
<th>Demographics</th>
<th>On-treatment follow-up (days)</th>
<th>Mean (SD)</th>
<th>%</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMEC/VI</td>
<td>TIO</td>
<td>143.2 (183.3)</td>
<td>72.1 (9.4)</td>
<td>44.6</td>
</tr>
<tr>
<td></td>
<td>Std. Diff. (%)</td>
<td>7.3</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>FP/SAL</td>
<td>(N=1,194)</td>
<td>130.3 (167.5)</td>
<td>72.1 (9.3)</td>
<td>43.9</td>
</tr>
<tr>
<td></td>
<td>Std. Diff. (%)</td>
<td>3.7</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>B/F</td>
<td>(N=1,227)</td>
<td>133.0 (177.1)</td>
<td>72.1 (9.4)</td>
<td>43.9</td>
</tr>
<tr>
<td></td>
<td>Std. Diff. (%)</td>
<td>4.3</td>
<td>1.7</td>
<td></td>
</tr>
</tbody>
</table>

For continuous variables, the standard difference is calculated by dividing the absolute difference in means of the control and the case by the pooled standard deviation of both groups. The pooled standard deviation is the square root of the average of the squared standard deviations. For dichotomous variables, the standardized difference is calculated using the following equation where P is the respective proportion of participants in each group: |(P_case−P_control) / √[(P_case*(1-P_case)+P_control*(1-P_control))/2]|

Results

- Rates were compared using rate ratios from Poisson regression models.
- Assessed with Kaplan-Meier survival analysis; risk was measured using hazard ratios (HR) from Cox regression models.
- The most costly and vulnerable patients with COPD are those with a high number of comorbidities and, consequently, high healthcare costs. Disease control is particularly important in this group to reduce burden on patients, as well as the healthcare system.
- Controlling severe exacerbations resulting in hospitalization, due to the impact on cost and disease burden, is key.
- These findings suggest that use of UMEC/VI in patients with COPD with high disease burden can reduce risk of future severe exacerbations.

Conclusions

- Patients initiated on UMEC/VI had significantly lower risk of severe exacerbation resulting in hospitalization compared with those initiated on TIO, FP/SAL, or B/F.
- Severe COPD-related exacerbations were defined as a hospitalization with a COPD-related exacerbation diagnosis code in the primary position.
- Patients initiated on UMEC/VI had significantly lower risk of severe exacerbation resulting in hospitalization compared with those initiated on TIO, FP/SAL, or B/F.
- These findings suggest that use of UMEC/VI in patients with COPD with high disease burden can reduce risk of future severe exacerbations.