INTRODUCTION & OBJECTIVES

Asthma is a chronic obstructive respiratory pathology with a high burden of disease and poses a relevant Public Health problem. The most recommended maintenance treatment in persistent asthma patients is the inhaled therapy with inhaled corticosteroids (ICS) and long-acting β2 adrenergic (LABA) bronchodilators. Asthma guidelines recommend the fixed dose combinations (ICS/LABA) use due to its convenience and because it might improve treatment adherence. Hence, these ICS/LABA treatments are widely used.

In fact, almost 3 million fixed-dose ICS/LABA inhalers are prescribed per year for asthma patients in Spain. Fixed dose ICS/LABA inhalers are available in two different inhaler devices: pressurized-metered-dose inhalers (pMDI) or dry-powder inhalers (DPI).

Each inhaler device type has its own features and handling limitations. Specific and proper training on the inhaler device is crucial to yield asthma control.

In Spain, as in most of EU countries, DPI devices are widely used as maintenance therapy (70-80% cases), although pMDIs are used in 20-30% as rescue medication (short-acting β2-adrenergics —SABA). Nevertheless, there is scarce evidence that this higher usage of DPI inhalers, as maintenance therapy, is based in published evidence that shows higher effectiveness.

Additionally, treatment persistence and adherence are critical factors in the therapeutic success in this pathology, and in both cases device selection has a relevant role.

The aim of this study was to assess treatment persistence and adherence with the combination of ICS/LABA, in the fixed-dose combination inhalers, depending on the inhaler device used: pMDI or DPI, for the treatment of asthma in a real world background. Additionally asthma exacerbations, resources consumption, and associated costs were recorded and analyzed.

METHODS

Retrospective observational study, based on an administrative Primary Care medical database, with covers a Health District >120,000 patients. Asthma patients who started therapy with ICS/LABA were recruited during a 5-year period (2007-2011) and a 3-year follow-up period, who fulfilled some inclusion/exclusion criteria to reflect “Real World Evidence” conditions.

Two different cohorts were compared, depending on inhaler device type. The main parameters assessed were: treatment persistence, adherence, asthma exacerbations and resource consumption.

RESULTS

Patient baseline data are displayed in table 1. No significant differences were found between the two arms. The cohort during the 5-years inclusion period (pMDI) vs. asthma patients who started therapy on ICS/LABA (DPI) (Fig.1). Almost 2/3 of patients were women, and the age (average) was 52.6 years.

Table 1: Baseline patient characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>PMDI (n=60)</th>
<th>DPI (n=208)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>52.6 ± 13</td>
<td>52.4 ± 15</td>
</tr>
<tr>
<td>Sex (female)</td>
<td>39/21</td>
<td>142/66</td>
</tr>
<tr>
<td>Country</td>
<td>Spain</td>
<td>Spain</td>
</tr>
<tr>
<td>Number of patients</td>
<td>60</td>
<td>208</td>
</tr>
</tbody>
</table>

Figure 1: Asthma fixed-dose ICS/LABA inhaler device distribution (n=2,028)

Figure 2: ICS/LABA treatment persistence during study period (3-year follow-up)

Asthma patients treated with pMDIs showed significantly higher therapy persistence on fixed dose ICS/LABA, compared to the most used DPI devices, throughout the 3-year follow-up period (Fig. 2).

Treatment adherence on pMDI device was significantly higher throughout the study in asthma patients. The medication possession ratio was 83.1% vs 80.5% (p < 0.001) (Table 2).

Table 2: Treatment adherence in asthma assessed patients

<table>
<thead>
<tr>
<th>Study group</th>
<th>pMDI (%)</th>
<th>DPI (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance</td>
<td>99 (96%)</td>
<td>86 (83%)</td>
</tr>
<tr>
<td>Treatment persistence</td>
<td>99 (96%)</td>
<td>86 (83%)</td>
</tr>
<tr>
<td>Medication possession ratio</td>
<td>99 (96%)</td>
<td>86 (83%)</td>
</tr>
</tbody>
</table>

Asthma exacerbations were recorded during the 3-year follow-up period. Patients under pMDI therapy had significantly less exacerbations (17.6% vs 24.9%; p < 0.001) (Fig. 3).

Exacerbation frequency was also recorded. Most of patients (around 70%) had suffered only 1 exacerbation during 3-year time frame, independently from the device, as it is shown on right columns (Fig. 3).

On average, asthma patients cost € 6.1 MM, with an average patient cost of €2,887/year.

Patient costs/year distribution (€) is displayed in Fig. 4 for asthma patients. The main cost drivers were: drugs (almost 1/3), visits to Primary Care physicians, and indirect costs.

Asthma patients treated with ICS/LABA under pMDI also consumed less resources, compared to DPI patients: €2,583 vs €2,938 (p=0.042) (Fig. 4).

CONCLUSIONS

Patients with asthma who started ICS/LABA therapy and were treated with a pMDI had higher persistence and adherence rates, better health outcomes and lower health costs from the societal perspective in Spain, being more cost-effectiveness compared to DPI inhalers. The inhaler device selection is very relevant in asthma treatment management, and their proper and continuous training/review is crucial. Despite the study limitations, the study findings where similar to other assessed previously in PC setting patients.

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