Identification of factors involved in medication adherence: incorrect inhaler technique of asthma treatment leads to poor adherence

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INTRODUCTION

Medication adherence can be defined as the degree to which a patient’s medication-taking behaviour and executing lifestyle changes correspond with recommendations from a doctor with respect to timing, dosage and frequency.1 Inhalation therapy presents particular challenges for patients suffering from asthma. Although inhalated corticosteroids/long-acting β2-agonist (ICS/LABA) fixed-dose combinations (FDCs) control asthma similarly, research has shown that inhaler technique associated with inhalers affects adherence, which is a crucial aspect for controlling asthma progression and symptoms.2-6

OBJECTIVES

To examine medication adherence in asthmatic patients, focusing on the associations between adherence and inhaler devices such as dry powder inhaler (DPI) or pressurized metered dose inhaler (pMDI), while adjusting for the potential effect of the active ingredient. Some confounders of adherence were analyzed, which were beyond clinical aspects.

MATERIAL & METHODS

Study sample & data source

- This is a retrospective and multicentre study based on review of medical registries of asthmatic patients between 2007 and 2014 treated with ICS/LABA FDCs, whose inhaler devices were either DPI such as Turbuhaler®, Accuhaler® and NEXThaler® or a pMDI.
- Inclusion criteria were: (1) aged 18 and over; (2) time of diagnosis > 3 years; (3) patients were required to have registries with regular monitoring for 18 months. Data on persistence of each patient at the 3rd, 6th, 12th and 18th month were obtained as well as information on possession, by patient’s refill count, and duration, by the number of days patient had the medication.
- Potential confounders of adherence were gathered: number of mild, moderate and acute exacerbations, comorbidities (hypertension, diabetes, dyslipidemia, depression, dementia), asthma severity (failures, allergic, heart disease, stroke, cerebrovascular disease). Obesity, smoking and alcoholism were also included as comorbidities.

Demographics of this sample were age, gender and whether the patient was retired or not. Average cost per month by patient was also included.

Calculation of medication adherence

- To calculate adherence, we utilized the medication possession ratio (MPR) and persistence data.1,7
- Since patients need to be persistent with their treatment and then they need to adhere to their prescriptions, we distinguished two groups: who were not persistent and not adherent, patients who were persistent but not adherent and patients who were persistent and adherent (Figure 1).

RESULTS

Table 1. Descriptive statistics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean (SD)</th>
<th>Median (IQR)</th>
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<tbody>
<tr>
<td>Adherence</td>
<td>72.5% (18.9)</td>
<td>71.2% (19.2)</td>
</tr>
<tr>
<td>Total sample</td>
<td>1,620</td>
<td>1,451</td>
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</tbody>
</table>

Table 2. Final specification: Ordered logit regression analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>95% CI</th>
</tr>
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<tbody>
<tr>
<td>DPI compared to pMDI</td>
<td>-0.67</td>
<td>[0.20, -1.29]</td>
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CONCLUSIONS

The effect of the inhaler technique associated to DPIs for ICS/LABA FDC was negative towards adherence compared to pMDI.

The active substances of FDCs included in this study were found to be not significant to explore adherence.

Association between adherence and comorbidities, cost, age and healthcare utilization suggested that adherence is a multifaceted problem in long term medication.

REFERENCES


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