



Characterization of chronic obstructive pulmonary disease prescribing patterns in the United States

Sarah E. Petite

Assistant Professor of Pharmacy Practice, University of Toledo, College of Pharmacy and Pharmaceutical Sciences, Department of Pharmacy Practice, 3000 Arlington Avenue Mail Stop 1013, Toledo, OH 43614, United States



A B S T R A C T

Background: Chronic obstructive pulmonary disease (COPD) is the third-leading cause of death in the United States. Guideline recommendations for medication therapy include the use of inhaled medications for management of stable COPD. There are limited data available describing prescribing percentages of medications in patients with COPD.

Aim: To determine the prescribing percentages of medications for COPD in a national, cross-sectional study.

Methods: This was a national, cross-sectional study using data from the National Ambulatory Medical Care Survey (NAMCS) in 2013. Patients were included if they had an International Classification of Diseases (ICD) 9 code for COPD and were greater than 18 years of age. Data describing patient demographics, provider demographics and prescribed medications were collected. Data were analyzed using sample weights to account for the multi-stage sample design.

Results: On weighted analysis, 15,821,000 patient visits were included. Patients were predominantly female, greater than 40 years of age and white, non-Hispanic. The most common provider type was primary care provider. At least one COPD medication was prescribed to 64.8% of included patients. Prescription of short-acting bronchodilators was most common in this cohort and observed at a percentage of 42.5%. A long-acting bronchodilator or inhaled corticosteroid was prescribed to 32.3% of included patients. The most common long-acting bronchodilator used was long-acting beta-agonist therapy in 21.3% of patients.

Conclusion: This study describes patients with COPD from a nationally representative sample. The percentage of maintenance medication prescribing indicates further opportunity for medication optimization in the outpatient setting for patients with COPD.

1. Introduction

Chronic obstructive pulmonary disease (COPD) is a progressive disease that is characterized by chronic airflow limitation [1]. The disease state is associated with significant morbidity and mortality and is the third leading cause of death in the United States [2]. Additionally, 10% of adults residing in assisted living or residential care have a diagnosis of COPD. The most well known risk factor for COPD is smoking; however, other factors, including genetics, have been identified [3].

The Global Initiative for Chronic Obstructive Pulmonary Disease (GOLD) guidelines provide comprehensive recommendations regarding diagnosis and treatment of COPD [1,4]. Pulmonary function tests are recommended to determine the grade of COPD severity. Determination of the severity of airflow limitation, in combination with assessment of exacerbation risk and symptoms, is the recommended method to guide appropriate prescribing of COPD medications [4]. Despite these recommendations, it is estimated that less than half of all COPD patients

undergo spirometry assessment [5].

Medication therapies for COPD are targeted at either maintenance of stable COPD or management of an acute exacerbation. Maintenance COPD medications reduce disease morbidity, including symptom frequency, exacerbation severity and frequency and improvement of exercise tolerance [1]. Available medications are targeted at either symptomatic relief or maintenance of stable COPD. Symptomatic relief is achieved with short-acting bronchodilators, including short-acting beta₂-agonists (SABA) or short-acting muscarinic antagonists (SAMA). Maintenance therapies include inhaled corticosteroids (ICS), long-acting muscarinic antagonists (LAMA), long-acting beta₂-agonists (LABA), theophylline and roflumilast. The GOLD guidelines provide recommendations on medication therapy for management of COPD based on the severity of disease. These recommendations have evolved as evidence has become available regarding the role of maintenance inhalers in COPD [1,4]. Data describing prescribing percentages of maintenance medications are limited; therefore, additional research is

E-mail address: sarah.petite@utoledo.edu.

<https://doi.org/10.1016/j.pupt.2018.02.003>

Received 15 November 2017; Received in revised form 7 February 2018; Accepted 12 February 2018

Available online 15 February 2018

1094-5539/ © 2018 Elsevier Ltd. All rights reserved.

needed to determine the frequency available medications are utilized for patients with COPD [6,7].

The management and maintenance of stable COPD is not well described in the literature [6,7]. Therefore, a cross-sectional analysis of office-based ambulatory care visits was conducted. The objective of this study was to characterize the use and prescribing patterns for COPD-related outpatient ambulatory care office visits in the United States.

2. Methods

This study was reviewed by the Institutional Review Board and determined to be exempt from board review. This study was performed using data from the National Ambulatory Medical Care Survey (NAMCS) in 2013. This year was chosen as a representative year following the release of the 2011 GOLD guidelines. The NAMCS is an annual national probability sample survey of ambulatory care visits conducted by the Division of Health Care Statistics, National Center for Health Statistics (NCHS). The survey includes visits to ambulatory care office-based physicians that are non-federally funded. Visits to physician office-based settings were eligible for inclusion. The sampling time frame was approximately 6 months after the start of the survey year. The 2013 NAMCS sampling design was a stratified two-stage sample. Physicians were selected in stage 1, followed by visits in stage 2. Twenty-nine geographical areas were represented in the 2013 survey. Additional details describing the NAMCS methodology are available from the NCHS [8–12].

Patient encounters were included if patients were greater than or equal to 18 years of age. COPD was defined by International Classification of Diseases (ICD)-9 codes of 490, 491, 492 and 496. Excluded patient encounters included those with an ICD-9 code of 493, indicating an asthma diagnosis. Patients with an ICD-9 code for COPD and asthma were excluded and only COPD patients without asthma were included. Data collected included patient demographic characteristics (age, gender, ethnicity, payor type), comorbid conditions, physician characteristics and prescribed medications. Since 2006, drug characteristics have been assigned with Multum's Lexicon Drug Database [13]. COPD medications were identified and specific medication names were reviewed to ensure they were medications likely used for COPD management. Eligible medications for inclusion were: albuterol, levalbuterol, pirbuterol, ipratropium, formoterol, salmeterol, arformoterol, mometasone, fluticasone, budesonide, beclomethasone, ciclesonide, tiotropium, aclidinium, roflumilast and theophylline. Relevant combination products were also eligible for inclusion.

The number of COPD visits were analyzed utilizing sample weights to account for the multi-stage sample design. Weighted data were used for the statistical analysis as recommended by the NCHS [9]. Descriptive statistics were utilized for physician and patient characteristics. Statistical analysis was conducted with IBM SPSS Statistics (Version 24, IBM, Chicago, IL). Results are presented as n (%) when in tabular format.

3. Results

During the study period, 2011 visits were identified (Fig. 1). The primary reason for study exclusion was a diagnosis code for asthma. On unweighted analysis, 831 visits were identified with an eligible diagnosis code and was 15,821,000 visits on weighted analysis. Baseline characteristics of the study population are provided in Table 1. Approximately one-third of included patients were between the age of 45 and 64 years. The majority of patients were female and white, non-Hispanic. A primary care provider was identified as the most common provider type for included patient visits and Medicare was the predominant payor type utilized for these visits.

The number of comorbid conditions were three or less in the majority of included patients. Spirometry assessment and tobacco education were done infrequently in this cohort. Nearly one-third of patients



Fig. 1. Study enrollment flowchart.

were on ten coded medications and approximately 90% of patients had at least one coded medication during their office visit. For patients with coded medications, two-thirds of patients were prescribed at least one medication for COPD.

The most common medication type prescribed for stable COPD was short-acting bronchodilators (Table 2). Nearly one-half of patient visits had a short-acting bronchodilator prescribed. Albuterol was coded most frequently and other short-acting bronchodilators were used at a lower frequency. A long-acting inhaler or nebulizer was prescribed in approximately one-third of visits. LABA and ICS therapy were prescribed more frequently than LAMA therapy in the cohort. If combination maintenance inhaler or nebulizer therapy was prescribed, LABA/ICS combinations were utilized at a higher frequency than LAMA/LABA combination therapy. Oral medications, roflumilast and theophylline, were prescribed at a low percentage at the sampled patient visits.

4. Discussion

This analysis of a nationally representative sample of office-based visits in the United States provides additional needed evidence regarding COPD medication prescribing patterns. The demographics of patients included in this analysis are similar to previous cross-sectional studies [14,15]. The predominant patient type with COPD remains women over the age of 40.

The most frequently prescribed medication type for maintenance COPD management was a short-acting bronchodilator. Due to the cross-sectional study design, COPD severity was unable to be determined. All COPD classifications, with the exception of Group A, should be prescribed maintenance inhaler therapy. Approximately one-third of patients in this sample were prescribed a maintenance inhaler, indicating a possible opportunity for improved COPD maintenance medication management. However, it is important to note approximately 10% of patients in this study did not have any coded medications, either indicating a low severity of illness or lack of complete documentation.

Limited studies have described the utilization of COPD maintenance medications in the United States in an office-based setting. A previous study describing the trends in prescribing patterns from 1999 to 2010 found increases in prescribing of long-acting inhalers during the studied period [7]. The finding of 20.2% prescribing percentages of LABA/ICS in 2013 was consistent with the previous study. The use of LAMA medication therapy in COPD patients was stable in this patient population compared to 2010. In the present study, two LAMA medications were prescribed to the studied patients (tiotropium and aclidinium).

Download English Version:

<https://daneshyari.com/en/article/8537817>

Download Persian Version:

<https://daneshyari.com/article/8537817>

[Daneshyari.com](https://daneshyari.com)