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A Study on the Drug Utilization Pattern of Oral and Inhaled Corticosteroids among the COPD Patients

Reddipalli Manasa, Mattaparthi Monika, Bhukya Naga Vamsi Naik, Oselebe Somto Dave,

Himasree Pithani*, Magharla Dasaratha Dhanaraju

Department of Pharmacy Practice, GIET School of Pharmacy, Rajahmundry, Andhra Pradesh, India

ARTICLE INFO	ABSTRACT
  Corresponding Author: **Dr. Himasree Pitani Pharm.D** Assistant Professor Department of Pharmacy Practice, GIET School of Pharmacy, Rajahmundry, Andhra Pradesh, India **E mail id:** himasree11@gmail.com	**Aim:** To evaluate the drug utilization pattern of the oral & inhaled corticosteroids among the COPD patients. **Materials & Methods:** This was a prospective study. Patients of both genders who were diagnosed with COPD were included in the study. Patients with other respiratory disorders were excluded from the study. The severity of the dyspnoea was assessed by using MRC (Medical Research Council) dyspnoea scale. **Results:** Among the 200 study participants, 198 (99%) were males and 2 (1%) were females. About 52 (26%) study participants were observed with Grade 1 severity, 113 (56.5%) study participants with Grade 2 severity, 32 (16%) study participants were observed with Grade 3 severity and 3 (1.5%) study participants were observed with the Grade 4 severity of dyspnoea. Among the oral corticosteroids, Methyl Prednisolone was the most commonly prescribed drug followed by Deflazocort. Among the inhaled corticosteroids, Levosalbutamol + Beclomethasone combination was commonly prescribed followed by the combination Formetrol + Budesonide. **Conclusion:** In this study, most of the patients with COPD were observed with Grade 2 severity of dyspnoea followed by Grade 1 and Grade 3. Clinical pharmacist should involve along with the pulmonologist in the department of pulmonology in order to identify the trends of prescribing patterns and thereby providing better pharmaceutical care for the COPD patients.

Introduction

At present, Chronic Obstructive Pulmonary Disease (COPD) has become a major health concern as the morbidity and mortality were increasing day by day. It is mainly characterized by the obstruction of the airflow which is not reversible completely [1]. It is the third leading cause of death worldwide [2]. About 5% of deaths were observed globally due to COPD in the year 2005 itself [3]. Previously COPD was more common in men but in recent times it was becoming more common in women too as the increased usage of tobacco among the women and also the increased risk of exposure to the indoor air pollution caused due to biomass fuel used for cooking [4]. Cigarette smoking, occupational dust, hereditary deficiency of alpha-1 antitrypsin for some of the significant factors that cause COPD [5]. The main symptoms of COPD can be chronic cough (with or without sputum), dyspnea & poor exercise tolerance [1].

Usually, poor health outcomes and increased economic burdens can be observed in the patients with chronic diseases [6]. Increased frequency of exacerbations and mortality rate can be the main reasons of non-adherence to COPD treatment. Educating the patient by creating awareness about the disease may help the patient to adhere to the drug regimen which is a significant element in effective COPD treatment [7]. In order to understand the drug use pattern, drug utilization studies are required especially in case of chronic diseases. Hence, we made an attempt to evaluate the drug utilization evaluation pattern of the oral & inhaled corticosteroids among the COPD patients.

Materials and Methods

This was a prospective study conducted in the department of Pulmonology at Vijaya Bharathi Chest Institute at Rajahmundry, East Godavari district of Andhra Pradesh. Data collection was done after getting the ethical clearance from the Institutional Ethics Committee and with the prior permission from the above mentioned hospital by adhering strictly to the inclusion and exclusion criteria. Patients of both the genders who were diagnosed with COPD were included in the study. Patients with other respiratory disorders were excluded from the study.

Data was collected from the patient records prospectively. Patient demographics, symptoms, co-morbidities, severity of dyspnoea and the oral & inhaled corticosteroids prescribed in the prescription were taken into consideration during the evaluation process.

Results and Discussion

Among the 200 study participants, 198 (99%) were males and 2 (1%) were females (Table 1). In this study, males were found to be more prone to COPD when compared to females. Among the 200 study participants, 1(0.5%) study participant belong to the age group 21-30 years, 7 (3.5%) study participants belong to the age group 31-40 years, 24 (12%) study participants belong to the age group 41-50 years, 53 (26.5%) study participants belong to the age group 51-60 years, 77 (38.5%) study participants belong to the age group 61-70 years, 35 (17.5%) study participants belong to the age group 71-80 years and the remaining 3 (1.5%) study participants belong to the age group 81-90 years. Majority of the patients with COPD were observed in the age group 61-70 years (38.5%) followed by 51-60 years (26.5%).

Table 1: Gender wise categorization of the study participants

Gender	Total (%)
Males	198 (99)
Females	2 (1)
Total	**200 (100)**

About 176 (88%) study participants experienced the symptoms of shortness of breath, 158 (79%) study participants experienced the symptoms of cough, 140 (70%) study participants experienced the symptoms of expectoration, 80 (40%) study participants experienced the symptoms of mucoid, 96 (48%) study participants experienced the symptoms of wheezing, 54 (27%) study participants experienced the symptoms of chest pain and 20 (10%) study participants experienced the symptoms of chest tightness (Figure:1). The most common symptoms experienced by the patients were the shortness of breath (88%), cough (79%) and expectoration (70%). Very few patients observed with the symptoms of chest tightness (10%).
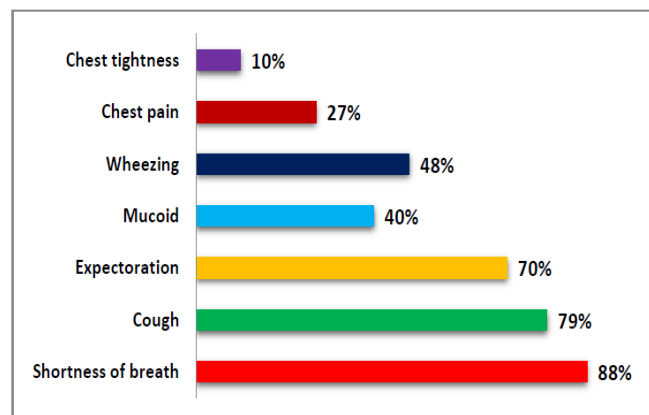

Figure 1: Symptoms experienced by the study participants

About 161 (80.5%) study participants were observed with bronchial hyper-responsiveness, 162 (81%) study participants were observed with secondary infection, 30 (15%) study participants were observed with Kochs, 89 (49.5%) study participants were observed with the hypertension, 57 (28.5%) study participants were observed with type 2 diabetes mellitus, 7 (3.5%) study participants were observed with haemoptysis and 77 (38.5%) study participants were observed with acid peptic disease (Figure:2).
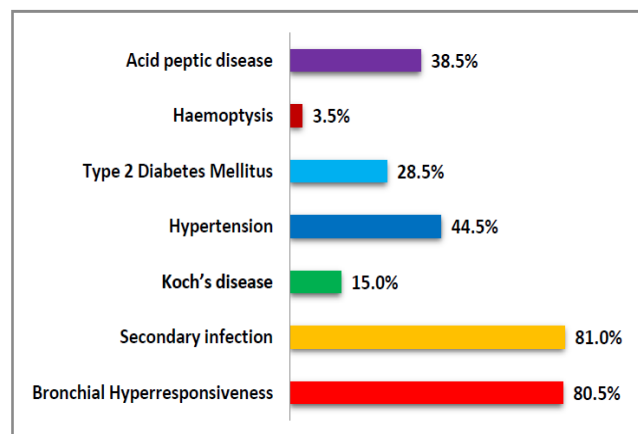

Figure 2: Co-morbidities of the study participants

The severity of dyspnoea was assessed by using the MRC dyspnoea scale. Among the 200 study participants, 52 (26%) study participants were observed with Grade 1 severity, 113 (56.5%) study participants with Grade 2 severity, 32 (16%) study participants were observed with Grade 3 severity and 3 (1.5%) study participants were observed with the Grade 4 severity of dyspnoea (Table 2/Figure 3). Majority of the study participants were observed with the Grade 2 severity followed by Grade 1. This result was similar to the study done by Maryam

Mahmoodan et al., (2017) [8]. Very few patients were observed with Grade 4 severity.

Table 2: Categorization of the study participants based on the severity of Dyspnoea using MRC dyspnoea scale

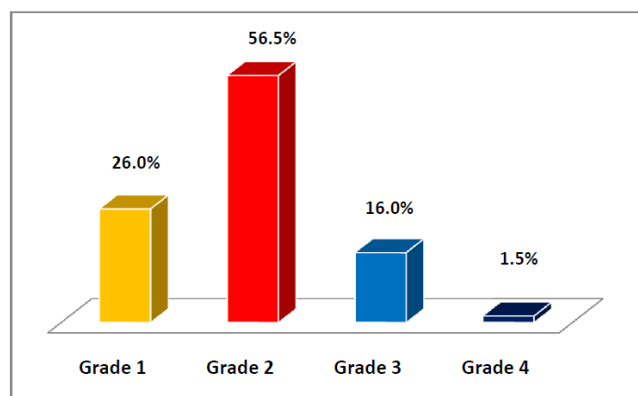| Grade	Males (%)	Females (%)	Total (%)
Grade 1	52 (26.3)	0 (0)	52 (26)
Grade 2	111 (56.1)	2 (100)	113 (56.5)
Grade 3	32 (16.1)	0 (0)	32 (16)
Grade 4	3 (1.5)	0 (0)	3 (1.5)
Total	198 (100)	2 (100)	200 (100)

Figure 3: Categorization of the study participants based on the severity of Dyspnoea using MRC dyspnoea scale

Among the 100 study participants who were prescribed with the oral corticosteroids, 17 (17%) were prescribed with Prednisolone, 41 (41%) were prescribed with Methyl prednisolone, 38 (38%) were prescribed with Deflazocort and the remaining 4 (4%) were prescribed with Dexamethasone (Figure 4). Methyl Prednisolone (41%) was found to be the most commonly prescribed oral corticosteroids among the study participants followed by Deflazocort (38%).
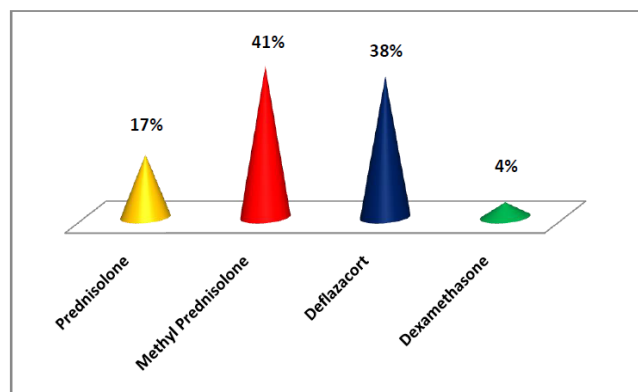

Figure 4: Frequency of the study participants prescribed with Oral corticosteroids

Among the 100 study participants who were prescribed with inhaled corticosteroids, 78 (78%) were prescribed with Levosalbutamol+Beclomethasone, 4 (4%) were prescribed with Salmetrol+Fluticasone, 16 (16%) were prescribed with Formetrol+Budesonide and the remaining 2 (2%) were prescribed with Fluticasone+Azelastine (Table 3). Levosalbutamol + Beclomethasone (78%) were the most commonly prescribed inhaled corticosteroids followed by Formetrol + Budesonide (16%) in this study. Very few study participants were prescribed with Fluticasone + Azelastine (2%).

Table 3: Frequency of the study participants prescribed with Inhaled corticosteroids

Name of the Drug	Total (%)
Levosalbutamol+Beclomethasone	78 (78)
Salmetrol+Fluticasone	4 (4)
Formoterol+Budesonide	16 (16)
Fluticasone+Azelastine	2 (2)
Total	100 (100)

Conclusion

In this study, most of the patients with COPD were observed with Grade 2 severity of dyspnoea followed by Grade 1 and Grade 3. Among the oral corticosteroids, Methyl Prednisolone was the most commonly prescribed drug followed by Deflazocort. Among the inhaled corticosteroids, Levosalbutamol + Beclomethasone combination was commonly prescribed followed by the combination Formetrol + Budesonide. Clinical pharmacist should involve along with the pulmonologist in the department of pulmonology in order to identify the trends of prescribing patterns and thereby providing better pharmaceutical care for the COPD patients.

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