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Research Article

Assessment of Demographic, Etiologic and Co-morbidity Status Among COPD Patients

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ABSTRACT

COPD is one of a common progressive disease characterized by persistent airflow limitations in the lungs with symptoms of breathlessness, excessive sputum production and chronic cough. This was a prospective, observational study carried out among patients of COPD in a tertiary care hospital to evaluate demographic, etiologic and co-morbidity status. Study was carried out by reviewing prescription of 120 COPD patients, out of which 67.5% were males and 32.5% were females. The majority of the patients were in age group of 56-60 years (34.16%). Among 120 patients, 65.83% were smokers and 48.33% were alcoholics. Etiologic assessment reflected that 68.33% patient belongs to low socioeconomic status followed by exposure to biomass smoker 8.33%. Out of 120 patients, 53.33% were not having any other co-morbid condition and the most common co-morbidity found in remaining patients was hypertension 17.5%. This study was concluded to state that such studies were found helpful for existing patient population, publics and also for scientific researchers.

Keywords: COPD, demographic, etiologic, co-morbidity, prescription

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is not a single disease but an umbrella term used to describe chronic lung disease that causes limitations in lung airflow. The Global Initiative for Chronic Obstructive Lung Disease (GOLD), a project initiated by the US National Heart, Lung and Blood Institute (NHLBI) and the World Health Organization (WHO), defines COPD as a common, preventable and treatable disease which is characterized by persistent airflow limitation that is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and co-morbidities contribute to the overall severity in individual patients. The more familiar terms 'chronic bronchitis' and 'emphysema' are no longer used, but are now included within the COPD diagnosis. COPD is a chronic, non-communicable disease which poses a continuous burden on health care infrastructure. More than 3 million people died due to COPD in 2012, which is equal to 6% of all deaths causes.

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Nearly 90% of COPD mortality has been attributed to low and middle-income countries. COPD prevalence is 5% among Indian males and approximately 3.2% among Indian females over 35 years of age. The most common symptoms of COPD are breathlessness, excessive sputum production, and a chronic cough[1-5].

COPD is a life-threatening lung disease that interferes with normal breathing. According to the WHO estimates (2004), currently 64 million people have COPD and 3 million people died of COPD. WHO predicts that COPD will become the 3rd leading cause of death worldwide by 2030. Almost 90% of COPD deaths under 70 years of age occur in low- and middle-income countries. COPD is a leading cause of world-wide mortality and disability. On average ~5-15% of adults in industrialized countries have COPD defined by spirometry. In 1990, COPD was considered to be at the 12th position world-wide as a cause of combined mortality and disability but is expected to become the 5th cause by the year 2020[5,6].

According to estimates of the WHO, about 80 million patients over the world suffered from COPD in 2005, whereas it accounts for 5% of all deaths. COPD is currently the 4th major cause of death worldwide. The prevalence is estimated to be about 1% worldwide, but is about 2 times higher in western societies, and often under estimated due to misdiagnosis. The burden of COPD for the patient is high as patients experience a poorer quality of life, suffer from co-morbidities (3.7 per patient), and direct healthcare costs range from 0.28 billion euros in the Netherlands (in 2000) to 20.9 billion dollars in the USA (in 2004). Prevalence of 251 million cases of COPD globally in 2016. Globally, it is estimated that 3.17 million deaths were caused by the disease in 2015 (that is, 5% of all deaths globally in that year). More than 90% of COPD deaths occur in low and middle income countries[7-9].

Tobacco is a legal drug which is currently responsible for the deaths of an estimated 6 million people across the world each year, with many of these deaths occurring prematurely. Tobacco smoking is associated with morbidity and mortality from non-communicable respiratory diseases (NCD's), including about 600000 people who are estimated to die every year from the effects of second-hand smoke. Globally, 84% of smokers live in developing and transitional economy countries. Tobacco smoke potentiates the detrimental effects of biomass smoke exposure. The WHO stated that in 2015, over 1.1 billion people smoked tobacco, males smoked tobacco more than females, and although it is declining worldwide and, in many countries, the prevalence of tobacco smoking appears to be increasing in the eastern Mediterranean and Africa[10].

METHODOLOGY

This study was undertaken to assess the demographic, etiologic and co-morbidity status among COPD patients.

Study Design: Prospective observational study

Study Criteria:

Inclusion Criteria

i. All patients attending OPD of Pulmonary Medicine diagnosed with COPD.
ii. COPD patients with or without co-morbid condition.

Exclusion Criteria

i. All the in-patients of concerned department.
ii. Patients who do not gave consent to participate in the study.
iii. Patients from pediatrics, pregnancy and lactating groups.

Source of Data:

The study data was collected from the following sources:

1. Direct interview of patients
2. Prescription record of patients

Study Procedure:

The study was carried out after getting approval from the Ethical Committee. Data from patients diagnosed with COPD during the study period was collected and detailed information on age, gender, social habits, risk factors and co-morbidity status among patients was assessed.

RESULTS

Demographic Assessment of COPD Patients

The study was conducted among 120 COPD patients and demographic assessment was summarized as per Table 1. Gender wise distribution of patients showed that 67.5% were males and 32.5% were females (Figure 1). Age wise distribution showed that majority of patients (34.16%) belongs to age group of 56-60 years and minimum patients (5%) belongs to age group of >65 years (Figure 2). Distribution of patients according to social habit, as reflected in Figure 3, showed that out of total 120 patients, 65.83% were smokers and 48.33% were alcoholics. Out of 81 male patients, 69.13% were found alcoholic and 91.35% were found smoker while out of 39 female patients, 5.12% were found alcoholic and 12.82% were found smoker.

Table 1: Demographic assessment of COPD patients

Demographic Parameters		Number of Patients (%) (n=120)
Gender		
Male		81 (67.50%)
Female		39 (32.50%)
Age (Years)		
36-40		07 (5.83%)
41-45		09 (7.50%)
46-50		17 (14.16%)
51-55		29 (24.16%)
56-60		41 (34.16%)
61-65		11 (9.16%)
>65		06 (5.00%)
Social Habit		
Alcoholic	Male	56 (69.13%)
	Female	02 (5.12%)
Smoker	Male	74 (91.35%)
	Female	05 (12.82%)

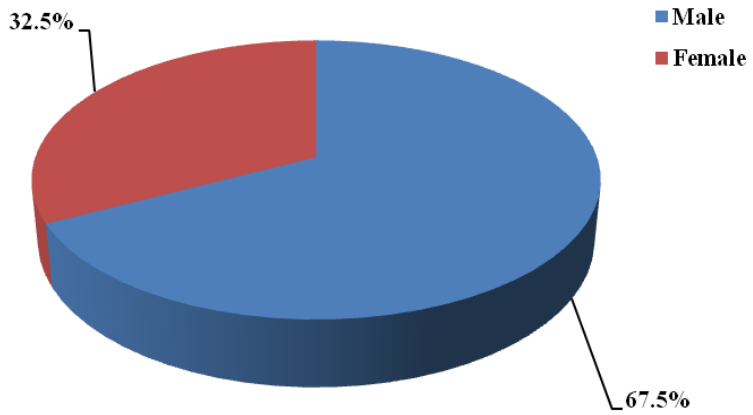

Figure 1: Gender wise distribution of patients

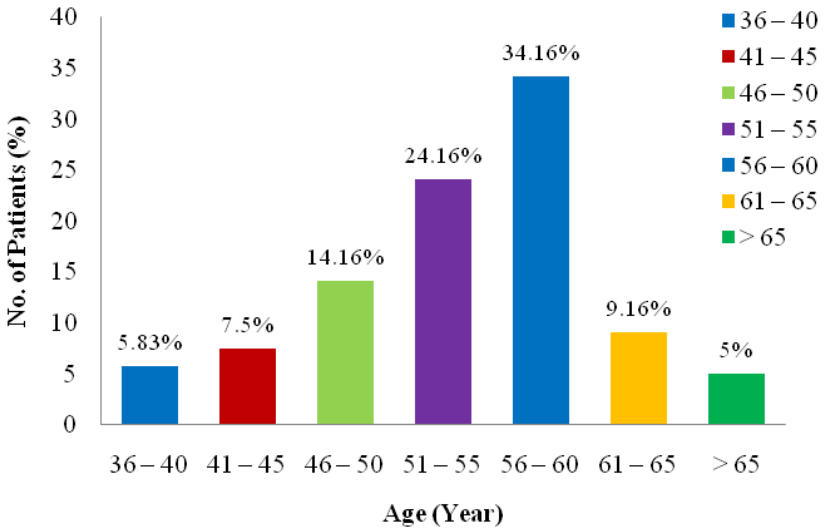

Figure 2: Age wise distribution of patients

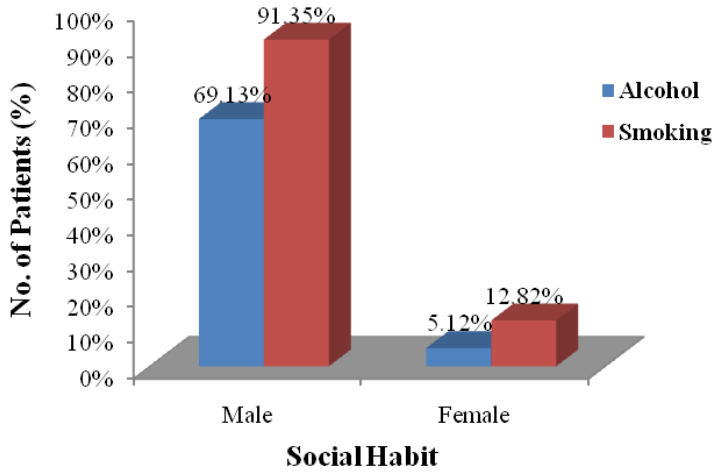

Figure 3: Distribution of patients according to social habit

Etiologic Assessment among COPD Patients

Table 2 showed etiologic assessment among COPD patients. It was analysed that among the various risk factors that were found in COPD patients, 68.33% patients belong to low socioeconomic status as major risk factor followed by smoking among 65.83% patients as second most important risk factors. Contribution by other risk factors includes exposure to biomass smoke (8.33%), long standing asthma (8.33%), treated pulmonary tuberculosis (5.83%), occupational exposure (5%), exposure to outdoor air pollution (4.87%) and long respiratory tract infection during childhood (2.5%).

Table 2: Etiologic assessment among COPD patients

Risk Factors in COPD Patients	No. of Patients (%) (n=120)
Low socioeconomic status	82 (68.33%)
Smoking	79 (65.83%)
Exposure to biomass smoke	10 (8.33%)
Long standing asthma	10 (8.33%)
Treated pulmonary tuberculosis	07 (5.83%)
Occupational exposure	06 (5.00%)
Exposure to outdoor air pollution	03 (4.87%)
Long respiratory tract infection during childhood	02 (2.50%)

Assessment of Co-morbidity Status among COPD Patients

From Table 3, co-morbidity status among COPD patients were evaluated. Out of 120 patients, 53.33% patients were not having any co-morbid condition while the most common co-morbidity found in remaining patients was hypertension (17.5%) followed by diabetes mellitus, tuberculosis, co-pulmonale, gastrointestinal disorders, ulcer disease, esophageal carcinoma and coronary artery disease as other co-morbid conditions.

Table 3: Assessment of Co-morbidity status among COPD patients

Co-morbidities	No. of Patients (%) (n=120)
COPD without Co-morbidity	64 (53.33%)
COPD with Hypertension	21 (17.50%)
COPD with Diabetes Mellitus	14 (11.66%)
COPD with Tuberculosis	07 (5.83%)
COPD with Co-pulmonale	06 (5.00%)
COPD with Gastrointestinal Disorders	05 (4.16%)
COPD with Ulcer Disease	01 (0.83%)
COPD with Esophageal Carcinoma	01 (0.83%)
COPD with Coronary Artery Disease	01 (0.83%)

DISCUSSION

Results showed that COPD occurs more in men than in women, which get confirmed by demographic assessment and could be largely due to cigarette smoking and other causes like low socioeconomic status and occupational exposure to vapor, dust, gas and fumes. This finding was found in accordance with results of the previous studies conducted by Unni A et al[11] and Sawant PM et al[12]. Age-associated changes in the structure and function of the lung may increase pathogenic susceptibility to COPD and occupational factors can also contribute to COPD. History of cigarette smoking is the major cause of COPD because cigarette smoke contains harmful toxins that affect the lung functionality and it may lead to stiffening of the air sacs, deterioration of walls between air sacs, thickening and inflammation of the airway walls and increases the production of mucus in the airways, causing air obstruction. The WHO stated that in 2015, over 1.1 billion people smoked tobacco, males smoked tobacco more than females, and although it is declining worldwide and in many countries the prevalence of tobacco smoking appears to be increasing in the eastern Mediterranean and Africa[10].

Etiologic assessment reflected that 68.33% patients were low socioeconomic status followed by exposure to biomass smoker 8.33%. Poverty is consistently associated with airflow obstruction and lower socioeconomic status is associated with an increased risk of developing COPD. It is not clear, however, whether this pattern reflects exposures to indoor and outdoor air pollutants, crowding, poor nutrition, infections, or other factors related to low socioeconomic status. Due to the incomplete combustion of formaldehyde and N, N-diethyl-meta-toluamide, one mosquito coil burning for 8 hour releases the same amount of PM 2.5 as 100 cigarettes. A one hour 'hookah' session with 'shisha' tobacco is equivalent to smoking over 100 cigarettes[13-16].

Out of 120 patients, 53.33% were not having any other co-morbid condition and the most common co-morbidity was hypertension as found in 17.5% patients. Hypertension is frequently seen in COPD patients because of loss of alveolar remodeling of the pulmonary vessels by chronic hypoxia and inflammation, decreases in the levels of endothelial vasodilators such as nitric oxide and vasospasm caused by factors such as endothelin-1. The stress, age, lifestyle modifications may also contribute to hypertension. The result representing hypertension as the mostly found co-morbid condition had similarity with previous studies conducted by Unni A et al[11], Sawant MP et al[12] and Mahmoodan M et al[17].

CONCLUSION

This study was conducted with the aim to assess the demographic, etiologic and co-morbidity status among COPD patients. COPD was found more in males among middle age, elderly population and cigarette smoking is among the major cause of COPD, so efforts to minimize such burden is an essential task. Poverty and lower socioeconomic status are associated with an increased risk of developing COPD. Hypertension was the mostly found co-morbid condition, therefore all factors contributing to its development considered being important. Overall outcomes of study results are helpful for existing general as well as patient population and also for scientific researchers in future considerations.

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