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A study of clinical profile of patients with chronic obstructive pulmonary disease

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Abstract--Background: Chronic obstructive pulmonary disease (COPD) is a common, preventable and treatable disease. Tobacco, smoking, occupational exposure to organic and inorganic dusts, chemical agents and fumes and biomass cooking are the risk factors for COPD. Chronic dyspnoea, cough, sputum production, wheezing and chest tightness are the common symptoms of COPD. Aim: The present study was undertaken to evaluate the clinical profile of COPD patients in central India. Methods: This was a prospective study of 250 patients of COPD who presented to out-patient department. Spirometry was performed to confirm the diagnosis. Detailed history of risk factors, age, socio-economic status and clinical examination was done for every patient. Results: Out of the 250 patients, majority was between 40-60 years of age, with male predominance (75.6%). Prevalence of COPD was more in rural and low socio-economic status patients. History of smoking was present in 65.2% patients. Commonest symptom was dyspnoea (in 96.4% patients) followed by cough (76.8%), sputum production (59.9%), wheezing (42.8%), chest tightness and fever (26.8%) and weight loss (19.2%). Hypertension was present in 18.8% patients. Conclusions: Prevalence of COPD was seen predominantly in male patients. Tobacco smoking was the commonest etiological factor. Clinical symptoms most commonly documented were dyspnoea, cough with or without expectoration, wheezing, chest tightness, fever and weight loss.

Keywords--COPD, clinical profile, breathlessness, smoking.

Introduction

Chronic obstructive pulmonary diseases (COPD) has been defined by GOLD (Guidelines for obstructive lung disease) as a disease state characterized by airflow limitation that is not fully reversible (with FEV₁/FVC <70%). The airflow limitation is usually progressive. It is associated with an enhanced chronic inflammatory response in the airways [1-2] it is a major and increasing global health burden of diseases. In India, the prevalence of COPD is shown to be 4.1% with male to female ratio of 1.56:1 in the population of above 35 years of age [3-4]. COPD is the fourth leading cause of death in the world [5]. COPD is a chronic respiratory disease characterized by a decline in lung function over time and accompanied by respiratory symptoms, primarily dyspnoea, cough, and sputum production. Exacerbations and co-morbidities contribute to the overall severity in individual patients [6]. COPD is associated with a significant economic burden including hospitalization, work absence, and disability. All these aspects of COPD are a matter of great concern as the current data suggest that COPD mortality is increasing [7-8]. It is increasingly recognized that, many patients with COPD have co-morbidities that have a major impact on quality of life and survival. Inflammatory mediators in the circulation may contribute to skeletal muscle wasting and cachexia and may initiate or worsen co-morbidities such as ischemic heart disease, heart failure, osteoporosis, normocytic anaemia, diabetes, metabolic syndrome, and depression [9]. COPD also has a number of risk factors. They can be genetic or environmental both and all types of risk factors playing their roles. Smoking has been reported and found out to be a major risk factor in COPD [10-11]. Present study was carried out to study the clinical profile of patients with chronic obstructive pulmonary disease.

Material and Methods

This was a cross sectional study conducted at the Department of medicine, government medical college, Datia, M.P. India. During the study period, out of total patients who attended the outpatient department of medicine, 250 patients who were eligible as per the inclusion and exclusion criteria and willing to participate in the present study were included.

Inclusion criteria

- Confirmed cases of COPD
- Age equal to/or more than 18 years
- Willing to participate in the present study

Exclusion criteria

- Age less than 18 year
- Pregnant women
- Who not willing to participate in the study

Detail clinical history, Physical examination, and Spirometry with reversibility were carried out for each and every patient. Patient's name, age, sex, race, marital status, occupation and address were recorded. Personnel history had been taken as smoking habit, alcohol intake and any other exposure to smoke and dust and any other addiction. History of any associated co-morbidity was also recorded.

Clinical profile of all patients were recorded and analyzed. The diagnosis of COPD was based on the GOLD guidelines. The COPD patients with post bronchodilator forced expiratory volume during first second (FEV1)/ forced vital capacity (FVC) <0.70 in the absence of any other alternative diagnosis. Data was entered and analyzed in Microsoft Excel Worksheet.

Results

A total of 250 patients diagnosed COPD were included in the present study. In our study majority of the COPD patients (29.2%) were found in the age group of 51-60 year, followed by (24.4%) were age group of 41-50. The prevalence of COPD was more common in male (75.6%), i.e. almost two third as compared to only 24.4% among the females. The prevalence of smoking among COPD was higher noted to be 65.2% compared to 34.8% as non smokers. Most of the COPD patients residing in rural area (59.2%) and belonged to low socio-economic status (41.6%). Socio-demographic details shown in table: 1.

Table 1: Socio-demographic profile of the COPD patients (n=250)

Socio-demographic Characteristics	No of patients	Percentage	
Age (in years)	18-30	20	8%
	31-40	44	17.6%
	41-50	61	24.4%
	51-60	73	29.2%
	Above 60	52	20.8%
Gender	Male	189	75.6%
	Female	61	24.4%
Smoking status	Smoker	163	65.2%
	Non smoker	87	34.8%
Residing area	Rural	148	59.2%
	Urban	102	40.8%
Socio-economic status	Lower	104	41.6%
	Middle	86	34.4%
	Upper	60	24

Among symptoms of COPD, most of the patients presented with Breathlessness (96.4%), while cough was present in 76.8%, sputum production in 59.6%, wheezing in 42.8%, chest tightness in 26.8%, fever in 20.4% and weight loss was seen in 19.2% of COPD patients (Table 2).

Table 2: presenting symptoms of COPD patients in this study (n=250)

Signs and Symptoms	No of patients	Percentage
Fever	51	20.4%
Cough	192	76.8%
Sputum production	149	59.6%
Breathlessness	241	96.4%
Chest tightness	67	26.8%
Wheezing	107	42.8%
Weight loss	48	19.2%

Among signs of COPD, Pallor was found in 26%, pedal edema (15,2%) and Icterus was seen in 10.4% cases(Table 3).

Table 3: clinical sign presented in COPD patients (n=250)

Signs and Symptoms	No of patients	Percentage
Pallor	65	26%
Icterus	12	4.8%
Clubbing	26	10.4%
Cyanosis	4	1.6%
Lymphadenopathy	3	1.2%
Pedal edema	38	15.2%

In our study, it was found that, 16.8% cases of having diabetes, 18.8% having hypertension and 11.6% having both diabetes and hypertension (table:4)

Table 4: Co-morbidities associated with the COPD patients (n=250)

Signs and Symptoms	No of patients	Percentage
Diabetes mellitus only	42	16.8%
Hypertension only	47	18.8
Diabetes mellitus and hypertension	29	11.6
Hypothyroidism	9	3.6
Ischemic heart disease	11	4.4
Chronic liver disease	6	2.4
No co-morbidity	106	42.4

Discussion

In our study most of the study population belongs to the age group of more than 40 years (74.4%), Rajkumar P et al [12], Vogelmeier CF et al [13]. Lamprecht B et al [14] and Fernandez V A, et al [15], have reported similar findings in their study where the maximum number of patients had the age of onset between 40 and 70 years. This is because it was more commonly seen in patients with advanced lung disease as an expression of deterioration in host defenses at the bronchial mucosal level.

Prevalence of COPD was predominant in male (75.6%) patients observed in the current study, This findings correlate well with the study conducted by Narayan M et al [16], Gudagunti AK [17], Pedone C et al [18] and *Kamdar DJ* et al [19]. The predominant prevalence of COPD in males can be attributed to the fact that males are more mobile and involved in outdoor activities than females and thus are subjected to more environmental pollutants. Moreover, males tend to indulge more in smoking and smoking is recognized as a risk factor for COPD and precipitation of exacerbation.

Present study found smoking (65.2%) was significant risk factor of COPD, our finding comparable with the many other studies: Gupta, et al [20], Patel B et al [21], Adwani, et al [22] and Sinha T et al [23]. Present study found prevalence of

COPD was more in rural and low socio-economic group population, concordance with the Kiran VK et al [24] and Sindhur JC et al [25]. The most common symptoms were breathlessness (96.8%) followed by cough (76.8%) and sputum production (59.6%), Similar findings reported in study done by Jimnaz et al [26] and Bajpai J et al [27]. Pallor (26%) and Pedal edema was most commonly present in COPD cases, 10.4 had clubbing, and only 1.6% had cyanosis which is comparable with the study done by Gudagunti et al [28]. The most common co-morbidity among COPD patients were hypertension (18.8%) followed by diabetes mellitus (16.8%), similar finding also observed by Arbat S et al [29] and Dhali S et al [30]

Conclusion

COPD was more common in older individuals. It was more common in males compared to females. Smoking was the most major risk factor for COPD. Clinical symptoms most commonly documented were dyspnoea, cough with or without expectoration, wheezing, chest tightness, fever and weight loss

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