



## PROFILE OF PATIENTS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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### ABSTRACT

**Background:** Various factors affect the incidence of COPD.

**Aim:** To study the profile of patients of chronic obstructive pulmonary disease.

**Material and Methods:** The study included 300 patients presented with signs and symptoms suggestive of COPD. The data recorded for the profile of the patients included personal data such as age, gender, residence area, socio economic status, BMI, clinical presentation and history of exposure to various risk factors.

**Results:** The maximum incidence of COPD was among the age group 51-70 with Male: Female ratio of 10.54: 1. Mean BMI was 18.584  $\pm$  3.77. 154 (51.3%) cases were known cases of COPD, 49 (16.3%) cases had history of tuberculosis in the past, 130 (43.3%) cases were active smokers, 94 (31.3%) cases were ex smokers. The mean duration of tobacco use was 31.5 pack years.

**Conclusions:** Cigarette smoking is by far the most commonly encountered risk factor for COPD.

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### INTRODUCTION

COPD is the fourth leading cause of death in the world and further increases in its prevalence and mortality are projected due to continued exposure to tobacco smoking and the changing age structure of the world's population (with more people living longer, and thus reaching the age at which COPD normally develops).<sup>1</sup>

Risk factors for COPD include both host factors (Genes like  $\alpha$ -1 Antitrypsin deficiency, Airway hyper responsiveness, Lung growth) and environmental exposures that include: Tobacco smoke; occupational dust and chemicals; indoor and outdoor air pollution; infection; socio-economic status.<sup>1</sup>

COPD has been found to have an association with age, gender, smoking, and exposure to occupational chemicals and several other factors. COPD manifestation, clinical and radiological features varies depending upon several factors like the stage of disease and existence of co-morbidities.<sup>3</sup>

Expiratory flow limitation, best measured by spirometry is the hallmark physiological change of COPD. It is primarily due to fixed airways obstruction and the consequent increase in airways resistance<sup>1</sup>.

Presence of post-bronchodilator FEV1 <80% of predicted value in combination with a FEV1/FVC <0.70 confirms presence of airflow limitation that is not fully reversible.<sup>1</sup>

### MATERIALS AND METHOD

The study was conducted in the Department of TB and Chest Diseases, Government Medical College, Patiala, Punjab (India). The study included 300 patients presented with signs and symptoms suggestive of COPD, both male and female, in outdoor as well as indoor. The data recorded for the profile of the patients included personal data such as age, gender, residence area, socio economic status, BMI, clinical presentation and history of exposure to various risk factors. The consent of the patient was taken for his/her enrollment in the study. The identity of patients was kept as secret.

### OBSERVATIONS AND RESULTS

In the study, 274 (91.3%) of the patients were males and 26 (8.7%) were females with Male: Female ratio of 10.54: 1.

The mean age was 59.26 ( $\pm$  11. 57) years, with range of 30-95 years. The maximum incidence of COPD in this study was among the age group 51-70.

Out of 300 cases 192 (64.1%) were from rural areas and 108 (35.9%) were from urban areas.

In present study, 199 (66.4%) patients belonged to middle class, 78 (28.9%) belonged to upper middle class, 14 (4.7%) belonged to upper lower & only 9 (3%) patients belonged to upper class.

Mean BMI was 18.584  $\pm$  3.77 with range of 10.63-29.38 kg/m<sup>2</sup>.

Breathlessness was the presenting symptom in majority around 284 (93.6%) cases with the mean duration of 4.5 months. Cough was present in 256 (85%) with expectoration in 234 (78 %) cases. Fever was the presenting symptom in 132 (44 %) cases, chest pain in 43 (14.3 %), loss appetite & weight in 25 (8.3%), haemoptysis in 15 (5%) and palpitation in only 3 (1%) cases.

Among the COPD cases included in the study, 154 (51.3%) cases were known cases of COPD. 49 (16.3%) cases had history of tuberculosis in the past, 24 (8%) cases were known cases of hypertension, 10 (3.3%) were known diabetic and 5 (1.6%) cases were asthmatic.

Among 300 cases included in the study, 130 (43.3%) cases were active smokers, 94 (31.3%) cases were ex smokers, 74 (24.7%) were non smokers and 2 (0.7%) were passively exposed to tobacco smoke.

The mean duration of tobacco use was 31.5 pack years with a range of 0.8 to 180 pack years.

168 (56%) cases were alcohol addict, 32 (10.6%) were jarda chewer, 16 (5.3%) were opium addict, 7 (2.3%) were bhuki addict, 4 (1.3%) were drug addict and 1 (0.3%) patient had history of other addictions. 103 (34.3%) patients did not had history of any addiction.

Among the study cases, around 153 (50.8%) cases had history of occupational exposure to dust particles and chemicals while 145 (48.5%) patients did not had any history of occupational exposure and in 2 (0.7%) cases the occupation exposure history was not known.

History of biomass fuel burning was found to be present in 140 (46.5%) cases while 157 (52.5%) patients did not had any history of biomass fuel burning and in 3 (1%) cases the history was not known.

On inspection, the shape of chest was normal in 30 (10%) patients. Chest was emphysematous in 261 (87%) cases, retraction was present in 6 (2%) patients and in 3 (1%) cases other abnormality like bulge was detected.

On auscultation, in 10 (3.3%) cases chest was normal. Rhonchi were heard in 263 (87.6%) cases, crepitations in 162 (54%) cases and in 35 (11.6%) patients breath sounds were decreased. Bronchial breathing was present in 15 (5%) patients on auscultation.

286 (95.3%) patients had X-ray features suggestive of emphysema. In 150 (50%) cases Cardiomegaly/ tubular heart was present on x-ray. 120 (40%) cases showed picture of consolidation, in 17 (5.6%) patients pleural effusion was present and Pneumothorax was present in 12 (4%) cases. In 6 (2%) cases cavity was present on x-ray. Mass lesion & bullae were found in 4 (1.3 %) cases each. 2 (0.67 %) cases showed the evidence of bronchiectasis.

## DISCUSSION AND CONCLUSIONS

In the present study, higher incidence of COPD in males can be attributed to tobacco smoking habits. None of the females were smokers but 24 (92.3%) out of 26 had history of exposure to biomass fuel burning and 2 (0.7%) had history of passive exposure to cigarette smoke. Also 2 of the females had history of occupational exposure to dust particles.

The higher incidence of COPD in age group 51-70 years may be attributed to age related decline in lung function and longer duration of tobacco exposure. The higher incidence among the rural residents may be due to occupational exposure and exposure to indoor air pollution of bio mass fuel, as majority of the rural cases (108/192) in present study were agriculturist by occupation and 106 out of 192 also had history of bio mass fuel usage.

Only 14(4.7%) of the upper lower class patients presented to us may be because of lack of awareness. Also only 9 cases were from upper class as the higher class people prefer to visit the private practitioner. As per GOLD guidelines, risk of developing COPD is inversely related to SES may be because of more exposure to indoor and outdoor pollution, crowding, poor nutrition or other factors related to low SES.<sup>2</sup>

In the present study, stage 3 was found to be most prevalent in all the age groups. This can be explained by the fact that majority of the patients of COPD present for the first time in stage 3, as during initial stages the symptoms are usually mild and patients do not report to the physician because of lack of awareness.

The high incidence of tuberculosis in this study may be explained by the fact that India being a developing country and having high prevalence of tuberculosis, the chances of developing tuberculosis are more. In 24 cases hypertension was found to be co existing morbidity which may increase the risk of cardiovascular complications in such cases. Around 10 patients were known cases of diabetes mellitus which may lead to frequent infections leading on to worsening of the respiratory symptoms. About 7 patients had past history of coronary artery disease which may be either independent or a complication of underlying COPD, as tobacco exposure is a risk factor for both coronary artery disease as well as COPD. 5 cases were known asthmatics. There is epidemiologic evidence that longstanding asthma on its own can lead to fixed airflow limitation.<sup>4</sup>

In the present study, the severity of the disease increased with increase in smoking quantity. Cigarette smokers have a higher prevalence of respiratory symptoms and lung function abnormalities, a greater annual rate of decline in FEV1, and a greater COPD mortality rate than nonsmokers. The risk for COPD in smokers is dose-related. Age at starting to smoke, total pack-years smoked, and current smoking status are predictive of COPD mortality.<sup>5</sup>

Among the cases included in their study, a history of agricultural exposure was elicited in 68% of subjects. There was a trend of diminishing FEV (1) with increasing years of agricultural exposure.<sup>6</sup>As per GOLD guidelines, Occupational exposures are an underappreciated risk factor for COPD. These exposures include organic and inorganic dusts and chemical agents and fumes.

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