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Original Article

Risk factors of chronic obstructive pulmonary disease

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ABSTRACT:

Background: Chronic obstructive pulmonary disease (COPD) is one of the common respiratory diseases, characterized by airflow limitation, which can be prevented and treated. The present study was conducted to assess risk factors for chronic obstructive pulmonary disease. **Materials & Methods:** 105 patients ofchronic obstructive pulmonary disease (COPD) of both genders were enrolled. History of smoking, BMI, education, allergy history, family history, biomass burning, poor house ventilation etc. was recorded. **Results:** Out of 105 patients, males were 60 (57.1%) and females were 45 (42.9%).70 were smoker and 35 were non- smoker, education level was upto primary seen in 76 and secondary in 29, BMI found to be under-weight in 55, overweight in 40 and normal in 35. Fuel used was household kerosene in 30, wood in 60 and LPG in 15. Allergy history was seen in 55 and family history was positive in 62. The difference was significant (P< 0.05). **Conclusion:** Common risk factors of COPD was low BMI, low education, male gender, allergy history, family history and use of wood as fuel.

Key words: Chronic obstructive pulmonary disease, Allergy, Wood

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is one of the common respiratory diseases, characterized by airflow limitation, which can be prevented and treated.[1]The proposed pathogenesis of COPD includes proteinase antiproteinase hypothesis, immunological mechanisms, oxidant-antioxidant balance, systemic inflammation, apoptosis and ineffective repair. Smoking, consumption of biomass and environmental exposures are various causative factors for COPD.[2]Cigarette smoking is the major cause of COPD worldwide.[5] However, in developing countries exposure to air pollution responsible for non-tobacco-smoking COPD might predominate. Recent studies have described non-tobacco-smoking COPD due to indoor pollution resulting from the use of biomass fuel and open fires for domestic purposes in poorly ventilated households.[3] This observation has a substantial impact on COPD in rural communities, particularly among females and their young children who are routinely engaged in cooking activities.[4]

In the past three decades, a number of important advances have been made in the treatment of patients with chronic obstructive pulmonary disease (COPD). For example, supplemental oxygen therapy and smoking cessation have resulted in improved traditional outcome measures, such as mortality and rate of forced expiratory volume in one second (FEV1) decline. Although these end-points are important to clinicians and patients alike, survival and physiological measures do not fully represent the experiences of patients with COPD.[5]The present study was conducted to assess risk factors forchronic obstructive pulmonary disease.

MATERIALS & METHODS

The present study comprised of 105 patients ofchronic obstructive pulmonary disease (COPD) of both genders. All gave their written consent for the participation in the study.

Data such as name, age, gender etc. was recorded. A thorough physical and clinical examination was performed. Parameters such as forced vital capacity (FVC), forced expiratory volume in 1 second (FEV1) and total expiratory time was recorded. Smoking, BMI, education, allergy history, family history, biomass burning, poor house ventilation etc. was also recorded in case history sheet. Results thus obtained were subjected to statistics. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 105		
Gender	**Males**	**Females**
Number	60 (57.1%)	45 (42.9%)

Table I, graph I shows that out of 105 patients, males were 60 (57.1%) and females were 45 (42.9%).

Graph I Distribution of patients

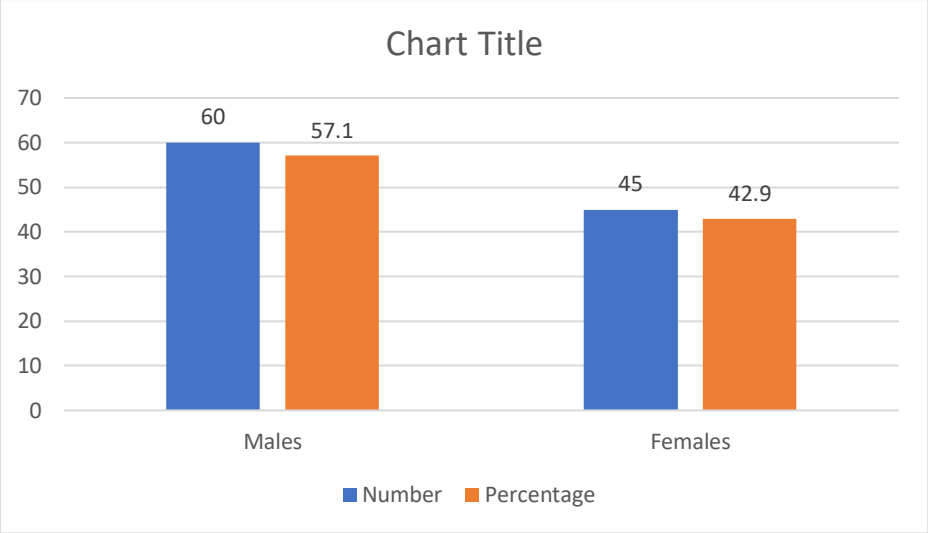
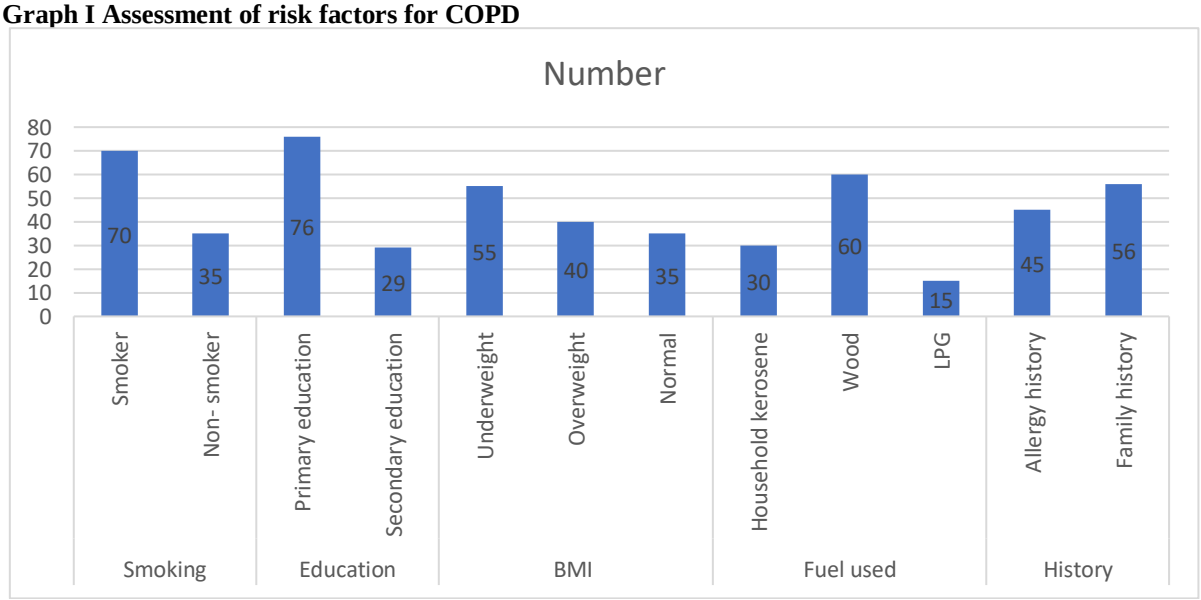


Table II Assessment of risk factors for COPD

Variables	Parameters	Number	P value
Smoking	Smoker	70	0.01
	Non- smoker	35	
Education	Primary education	76	0.02
	Secondary education	29	
BMI	Underweight	55	0.07
	Overweight	40	
	Normal	35	
Fuel used	Household kerosene	30	0.05
	Wood	60	
	LPG	15	
History	Allergy history	55	-
	Family history	62	-

Table II, graph II shows that 70 were smokerand 35 were non- smoker, educationlevel was uptoprimaryseen in 76 and secondary in 29, BMI found to be under-weight in 55, overweightin 40 and normal in 35. Fuel used was household kerosene in 30, woodin 60 and LPG in 15. Allergy historywas seen in 55 and family historywas positive in 62. The difference was significant (P< 0.05).

Graph I Assessment of risk factors for COPD



DISCUSSION

According to the estimate of World Health Organization (WHO), about 3 million people died of COPD in 2005, which count for 5% of the total mortality worldwide. It is expected that by 2030, COPD will become the world's third largest lethal disease. In a time of aging populations, COPD is becoming more and more serious, with high and increasing morbidity and mortality, especially in developing countries. In China, the overall prevalence of COPD in people older than 40 was 8.2% according to a large, population-based survey.[6]

The hallmark of COPD is a poorly reversible and progressive airflow limitation resulting from prolonged exposure to inhalational noxious pulmonary agents that initiates detrimental chronic airway inflammation and lung damage.[7]Patients with COPD generally present with chronic cough and sputum production with or without dyspnoea.[8] This clinical presentation tends to be ignored by patients until they present late for treatment at advanced stages of disease, often after developing intolerable dyspnoea.[9]The present study was conducted to assess risk factors forchronic obstructive pulmonary disease (COPD).

In present study, out of 105 patients, males were 60 (57.1%) and females were 45 (42.9%). Aggarwal et al[10]estimated prevalence of bronchial asthma in different regions of India and to define risk factors influencing disease prevalence.Data from 73605 respondents (37682 men, 35923 women) were analysed. One or more respiratory symptoms were present in 4.3-10.5% subjects. Asthma was diagnosed in 2.28%, 1.69%, 2.05 and 3.47% respondents respectively at Chandigarh, Delhi, Kanpur and Bangalore, with overall prevalence of 2.38%. Female sex, advancing age, usual residence in urban area, lower socio-economic status, history suggestive of atopy, history of asthma in a first degree relative, and all forms of tobacco smoking were associated with significantly higher odds of having asthma.

We found that 70 were smoker and 35 were non-smoker, education level was upto primary seen in 76 and secondary in 29, BMI found to be under-weight in 55, overweight in 40 and normal in 35. Fuel used was household kerosene in 30, wood in 60 and LPG in 15. Allergy history was seen in 55 and family history was positive in 62.Biomass fuels (e.g., wood, animal dung, crop residues, and coal) typically burned in open fires or poorly functioning stoves, may lead to very high levels of indoor air pollution.

The utility of the BODE score in predicting survival was confirmed in patients with severe emphysema in the NETT. In this study, the six-minute walk distance was replaced by exercise capacity measured on an incremental cycle ergometer. In subjects with a modified BODE score of greater than 7, there was a relative risk of mortality of 1.53 (95% confidence interval [CI], 1.07–2.05; $P = 0.02$). On the basis of this study, it has been suggested that the BODE score be included as an outcome measure in clinical trials of COPD.[11]

The National Emphysema Treatment Trial can serve as a model for assessment of outcomes in future clinical trials in COPD. NETT was a large clinical trial of 1,218 patients designed to assess the efficacy of lung volume reduction surgery in patients with emphysema. Non-smoking subjects with bilateral moderate-severe emphysema on chest CT scan, moderate-to-severe airflow limitation ($FEV_1 \leq 45\%$ of predicted), hyperinflation (total lung capacity $\geq$ 110% of predicted and residual volume capacity $\geq$ 220% of predicted) were enrolled. Subjects were randomized to either maximal medical therapy, including pulmonary rehabilitation, or to lung volume reduction surgery plus maximal medical therapy. Results showed that survival was improved in all subjects, and subjects with upper lobe–predominant emphysema and low exercise capacity had the greatest survival benefit.[12]

CONCLUSION

Authors found that common risk factors of COPD was low BMI, low education, male gender, allergy history, family history and use of wood as fuel.

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