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Original Research Article.

Analysis of Risk Factors of COPD among Patients Reporting to Tertiary Care Hospital

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ABSTRACT

Background: Chronic obstructive pulmonary disease (COPD) is a nonreversible lung condition that includes both chronic bronchitis and emphysema. Smoking is the most important risk factor for the development of COPD. Hence; the present study was undertaken for assessing risk factors of COPD among patients reporting to tertiary care centre.

Materials & Methods: A total of 50 COPD patients were analysed during the study period. Written consent was obtained from all the patients before the starting of the study after explaining in detail the entire study protocol. Complete demographic and clinical profile of all the patients was obtained. Complete clinical examination of all the patients was carried out. Risk factors of COPD were recorded separately and were analysed. All the results were recorded and analysed by SPSS software. Chi- square test was used for evaluation of level of significance.

Results: Significant results were obtained while assessing the age-wise distribution of patients. 58 percent of the patients were males while the remaining were females. Non-significant results were obtained while assessing the gender-wise distortion of patients. Smoking history was found to be present in 72 percent of the patients. Significant results were obtained while assessing smoking as a risk factor for COPD. Positive family history of COPD was found to be present in 60 percent of the patients. Rural residence was found to be present in 58 percent of the patients.

Conclusion: Old age and smoking were found to be significant risk factors of COPD.

Key words: Chronic Obstructive Pulmonary Disease, Risk Factors.

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INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a nonreversible lung condition that includes both chronic bronchitis and emphysema. Development of COPD is characterized by the progressive limitation of air passageways as well as pulmonary and systemic inflammation. Symptoms of COPD include chronic cough, sputum production, and shortness of breath. The global prevalence of COPD is projected to increase, becoming the third leading cause of death by the year 2020.[1-3] During the natural history of chronic airflow obstruction, smoking reduces the value of the maximal forced expiratory volume in 1 second (FEV_1) and increases the rate of FEV_1 decline and is the strongest risk factor for COPD. However, although the smoking rate has recently decreased, the burden of COPD has increased. The risk factors for COPD, other than smoking, especially in never-smokers, and the prevention for this disease have become targets of interest. Although the development of airflow obstruction is less common than in continuous smokers, 5%–7% of never-smokers develop airflow obstruction.[4-6]

Smoking is the most important risk factor for the development of COPD. Nicotine is a potent, addictive alkaloid inhaled when smoking tobacco and reaches the nervous system within a few seconds stimulating nicotinic receptors of acetylcholine generating addiction through complex mechanisms. Approximately 15% of smokers develop COPD so it is clear that there are many other factors that contribute to the presence of the disease. However, multiple studies demonstrate that more than 15% of smokers will develop chronic airway obstruction with COPD criteria, with a range of 25%-50%. Second hand smoke, i.e., ambient cigarette smoke inhaled by non-smokers, represents another important risk factor.[7] Hence; the present study was undertaken for assessing risk factors of COPD among patients reporting to tertiary care centre.

MATERIALS & METHODS

The present study was conducted in the Department of TB & Chest, Saraswati Medical College, Unnao, U.P. (India) and it included assessment of various risk factors of COPD among patients reporting to tertiary care centre.

A total of 50 COPD patients were analysed during the study period. Written consent was obtained from all the patients before the starting of the study after explaining in detail the entire study protocol. Complete demographic and clinical profile of all the patients was obtained.

Exclusion Criteria

- Patients with history of any other systemic illness,
- Patients with any known drug allergy,
- Patients with presence of any other metabolic disorder,
- Patients with presence of any malignant lesion

After meeting the exclusion criteria, complete clinical examination of all the patients was carried out. Risk factors of COPD were recorded separately and were analysed. All the results were recorded and analysed by SPSS software. Chi- square test was used for evaluation of level of significance.

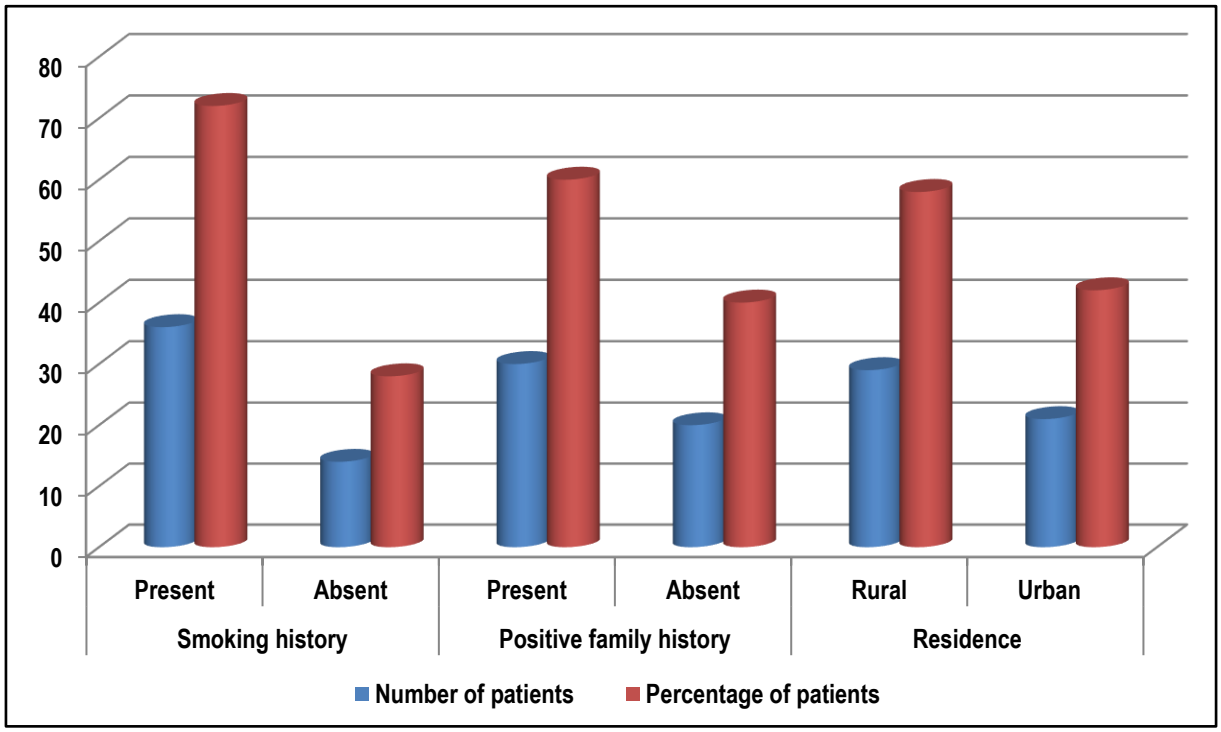
Table 1: Age and gender-wise distribution

Parameter		Number of patients	Percentage of patients	p- value
Age group (years)	**Less than 25**	5	10	0.00 (Significant)
	25 to 40	8	16	
	41 to 55	12	24	
	More than 55	25	50	
Gender	**Males**	29	58	0.113
	Females	21	42	

Table 2: Risk factors

Risk factors		Number of patients	Percentage of patients	p- value
Smoking history	**Present**	36	72	0.00 (Significant)
	Absent	14	28	
Positive family history	**Present**	30	60	0.36
	Absent	20	40	
Residence	**Rural**	29	58	0.15
	Urban	21	42	

Graph 1: Risk factors



RESULTS

In the present study, a total of 50 patients with COPD were analysed. 50 percent of the patients belonged to the age group of more than 55 years. 24 percent of the patients belonged to the age group of 41 to 55 years. Significant results were obtained while assessing the age-wise distribution of patients. 58 percent of the patients were males while the remaining were females. Non-significant results were obtained while assessing the gender-wise distortion of patients.

Smoking history was found to be present in 72 percent of the patients. Significant results were obtained while assessing smoking as a risk factor for COPD. Positive family history of COPD was found to be present in 60 percent of the patients. Rural residence was found to be present in 58 percent of the patients. Non-significant results were obtained while assessing positive family history and residence as a risk factor of COPD.

DISCUSSION

Chronic obstructive pulmonary disease (COPD) is a common respiratory disease in adults, and is diagnosed on the basis of a forced expiratory volume in 1 second of < 0.07 ($FEV_1/FVC < 0.07$) in the pulmonary function test (PFT). COPD is characterized by dyspnea due to limited airflow.[6-9] Hence; the present study was undertaken for assessing risk factors of COPD among patients reporting to tertiary care centre.

In the present study, a total of 50 patients with COPD were analysed. 50 percent of the patients belonged to the age group of more than 55 years. 24 percent of the patients belonged to the age group of 41 to 55 years. Significant results were obtained while assessing the age-wise distribution of patients. 58 percent of the patients were males while the remaining were females. Non-significant results were obtained while assessing the gender-wise distortion of patients.

Lee SJ et al investigated the risk factors for COPD among never-smokers in Korea using population-based data. The data were retrieved from the Korean National Health and Nutrition Survey IV conducted from 2007 to 2009. Among subjects aged 40 years or older who underwent appropriate pulmonary function tests, never-smokers not diagnosed with asthma and not showing a restrictive pattern on pulmonary function tests were enrolled. Risk factors of COPD in never-smokers were analyzed using logistic regression models. Among 24,871 participants in the representative Korean cohort, 3,473 never-smokers were enrolled. COPD patients accounted for 7.6% of the never-smokers. In the logistic regression analysis, low education status (odds ratio [OR]: 2.0; 95% confidence interval [CI]: 1.2–3.2), occupational exposure (OR: 2.6; 95% CI: 1.3–5.3), a history of tuberculosis (OR: 4.5; 95% CI: 2.3–8.7), bronchiectasis (OR: 6.0; 95% CI: 1.4–25.4), male sex (OR: 4.2; 95% CI: 2.6–6.7), advanced age (60–69 years vs 40–49 years; OR: 3.8; 95% CI: 2.0–7.0), and being underweight (body mass index <18.5 vs 18.0–24.9 kg/m2; OR: 3.1; 95% CI: 1.0–9.4) were associated with the development of COPD. Low education status, manual labor, a history of tuberculosis and bronchiectasis, as well as male sex, advanced age and being underweight were risk factors for COPD in Korean never-smokers.[10]

In the present study, smoking history was found to be present in 72 percent of the patients. Significant results were obtained while assessing smoking as a risk factor for COPD. Positive family history of COPD was found to be present in 60 percent of the patients. Rural residence was found to be present in 58 percent of the patients. Non-significant results were obtained while assessing positive family history and residence as a risk factor of COPD.

Oh H et al determined the prevalence of COPD among non-smoking adults, and to investigate the risk factors that affect disease occurrence. 5,489 non-smoking adults aged between 40 to 79 years with diagnosable FEV1/FVC were selected therefrom as the subjects of this study. The prevalence of COPD in non-smokers was observed to be 6.9%. The development of the COPD showed statistically significant difference among groups; males showed about 2.54 times (95% CI: 1.410～146.612) higher rates compared to females, subjects aged 70–79 showed about 3.08 times (95% CI: 1.823～11.437) higher rates compared to those aged 40–49, subjects whose education level was elementary school or less showed about 5.36 times (95% CI: 1.341～21.393) higher rates compared to those who are college or more, and subjects who are middle school showed about 4.72 times (95% CI: 1.374～16.217) higher rates compared to the college or more. It is confirmed that development of the COPD in non-smokers reaches significance.[11]

CONCLUSION

From the above results, it was concluded that old age and smoking were found to be significant risk factors of COPD. However; further studies are recommended.

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