

Assessment of Chronic Obstructive Pulmonary Disease among Smoker and Non-Smoker: A Hospital Based Prospective Study

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Original

Article

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ABSTRACT

Background: Chronic obstructive pulmonary disease (COPD) is characterized by persistent airflow limitation that is typically progressive and associated with an enhanced chronic inflammatory response in the airways and lung tissue to harmful particles or gases. The present study was conducted to assess the cases of COPD among smokers and non-smokers. **Materials & Methods:** The present study was conducted on 50 subjects of both genders. Subjects diagnosed based on history, clinical examination and spirometric criteria were included. Subjects were divided into 2 groups. Group I (25) were those who were habit of smoking since 20 years and group II who were non-smokers. **Results:** Age group 20-30 years had 3 subjects in group I and 4 subjects in group II, 30-40 years had 7 subjects in group I and 6 in group II, 40-50 years had 9 subjects in group I and 7 in group II and >50 years had 6 subjects in group I and 8 in group II. The difference was non-significant. In group I, 10 subjects were from urban and 18 were from rural area and 15 were from urban and 7 were from rural area in group II. The difference was non-significant. 12 subjects in group I and 20 in group II had history of occupational exposure, 10 in group I and 18 in group II history of environmental exposure and 6 in group I and 17 in group II history of bio mass fuel usage. The difference was significant. **Conclusion:** COPD is a common respiratory disease mostly associated with smokers. However, environmental factors, occupational factors also play an important among non-smokers.

Key words: COPD, Environmental, Smokers.

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INTRODUCTION


COPD is characterized by persistent airflow limitation that is typically progressive and associated with an enhanced chronic inflammatory response in the airways and lung tissue to harmful particles or gases. The chronic airflow limitation in COPD is caused by the combination of parenchymal destruction and small airways disease of which the relative presence varies from person to person.^[1]

Among the major causes of COPD, the role of tobacco smoking is well recognized. Among smokers, only approximately 20% of smokers develop the disease. However, in the past decade a number of studies have suggested other important factors to be strongly associated

with COPD.^[2] These factors include exposure to indoor and outdoor air pollutants, workplace exposure to dust and fumes, history of repeated lower respiratory-tract infections during childhood, history of pulmonary tuberculosis, chronic asthma, intrauterine growth retardation, poor nourishment, and poor socioeconomic status. About 15–20 % of COPD cases are due to occupational exposures to pollutants at the workplace. These facts emphasize the need for action in order to reduce the impact of those risk factors on disease development.^[3]

The most common symptoms of COPD are sputum

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production, shortness of breath, and a productive cough. These symptoms are present for a prolonged period of time and typically worsen over time. It is unclear whether different types of COPD exist. While previously divided into emphysema and chronic bronchitis, emphysema is only a description of lung changes rather than a disease itself, and chronic bronchitis is simply a descriptor of symptoms that may or may not occur with COPD.^[4] The present study was conducted to assess the cases of COPD among smokers and non-smokers.

METHODS

The present study was conducted on 50 subjects of both genders in department of Medicine M.G. Hospital, Bhilwara, Rajasthan, India.. All subjects were informed regarding the study and written consent was obtained. Ethical clearance was obtained before starting the study. Subjects diagnosed based on history, clinical examination and spirometric criteria were included. Subjects were divided into 2 groups. Group I (25) were those who were habit of smoking since 20 years and group II who were non-smokers. Results thus obtained were subjected to statistical analysis using chi-square test. P value less than 0.05 was considered significant.

RESULTS

Table I shows that out of 50 patients, smokers were 25 and non-smokers were 25. The difference was non-significant (P= 1).

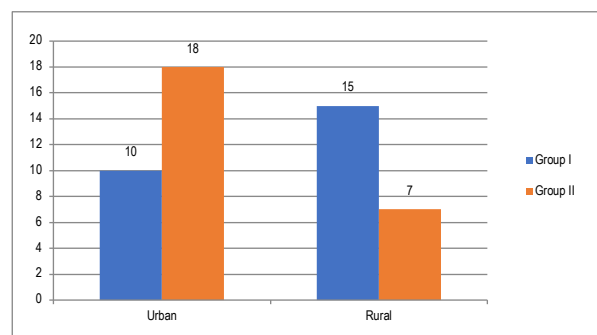
Table 1: Distribution of subjects

Total- 50		P value
Group I (Smoker)	Group II (Non smoker)	
25	25	1

Table II shows that age group 20-30 years had 3 subjects in group I and 4 subjects in group II, 30-40 years had 7 subjects in group I and 6 in group II, 40-50 years had 9 subjects in group I and 7 in group II and >50 years had 6 subjects in group I and 8 in group II. The difference was non-significant (P= 0.5).

Table 2: Age wise distribution in groups

Ag group (years)	Group I	Group II	P value
20-30	3	4	0.5
30-40	7	6	
40-50	9	7	
>50	6	8	



Graph I: Geographical distribution of subjects

Graph I shows that in group I, 10 subjects were from urban and 15 were from rural area and 18 were from urban and 7 were from rural area in group II.

were from rural area in group II. The difference was non-significant (P= 1).

Table III shows that 12 subjects in group I and 20 in group II had history of occupational exposure, 10 in group I and 18 in group II history of environmental exposure and 6 in group I and 17 in group II history of bio mass fuel usage. The difference was significant (P< 0.05).

Table 3: Risk factors in subjects

Risk factors	Group I	Group II	P value
Occupational exposure			
Yes	12	20	0.01
No	13	5	
Environmental exposure			
Yes	10	18	0.05
No	15	7	
Bio mass fuel			
Yes	6	17	0.02
No	19	8	

DISCUSSION

The primary risk factor for COPD globally is tobacco smoking. Of those who smoke, about 20% will get COPD and of those who are lifelong smokers, about half will get COPD. In the United States and United Kingdom, of those with COPD, 80–95% are either current smokers or previously smoked.^[5]

In a study by Abersen et al^[6] of 14,619 participants, 1993 subjects with COPD were identified of whom 689 as prevalent ones and 1304 cases as incident ones. The overall incidence rate (IR) of COPD was 8.9/1000 person. The IR was higher in males and in smokers. The proportion of female COPD participants without a history of smoking was 27.2%, while this proportion was 7.3% in males. The prevalence of COPD in the Rotterdam Study is 4.7% and the overall incidence is approximately 9/1000 PY, with a higher incidence in males and in smokers. The proportion of never smokers among female COPD cases was substantial.

In present study, out of 50 patients, smokers were 25 and non-smokers were 25. Age group 20-30 years had 3 subjects in group I and 4 subjects in group II, 30-40 years had 7 subjects in group I and 6 in group II, 40-50 years had 9 subjects in group I and 7 in group II and >50 years had 6 subjects in group I and 8 in group II. This is in agreement with Stang et al.^[7]

In a study by Aggarwal^[8], maximum patients (35.41%) among non-smoker COPD group had more than one risk factor for COPD. Most of the patients among non-smoker COPD were found to be having severe to very severe disease (63.5%). 34.4% patients had moderate COPD and very few patients had mild COPD (3%). On comparing disease severity among non-smoker and smoker COPD patients, we found that proportion of patients with very severe disease was more in smoker group (39.2% in smoker vs. 29.2% in non-smoker), while proportion of patients with mild to moderate disease were more in non-smoker group (35.5% in non-smoker vs. 24% in smoker). Patients with severe disease in both groups were found to be of equal proportion (33.3% in non-smoker vs. 36.7% in smoker).

In present study, in group I, 10 subjects were from urban and 15 were from rural area and 18 were from urban and 7 were from rural area in group II. 12 subjects in group I and 20 in group II had history of occupational exposure, 10 in group I and 18 in group II history of environmental exposure and 6 in

group I and 17 in group II history of bio mass fuel usage. This is in agreement with Cook et al.^[9]

Soriano et al^[10] found that prevalence of COPD among never-smokers was 3.0-7.7%. Corresponding prevalence of GOLD ≥ 2 was 1.3-3.5%. Symptoms were highly prevalent in subjects with GOLD ≥ 2 , regardless of smoking status. No significant regional differences in prevalence between OLIN and WSAS were seen. Risk factors for COPD among never-smokers included age, physician-diagnosed asthma and occupational exposure to gas, dust or fumes. Passive smoking in multiple settings was independently associated with an incrementally increased risk of COPD. Comorbidities, in particular cardiac and cardiovascular conditions, were highly prevalent among subjects with GOLD ≥ 2 regardless of smoking status.

CONCLUSION

COPD is a common respiratory disease mostly associated with smokers. However, environmental factors, occupational factors also play an important among non- smokers.

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