

EVALUATION OF ASSOCIATION OF SMOKING WITH OBSTRUCTIVE AIRWAY DISEASE**MhaisekarDG¹, Mahindrakar MM^{2*}, Kapse VR³**

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ABSTRACT:

Background: Background: The most commonly seen obstructive airway diseases are COPD, Asthma, Bronchitis, Bronchiolitis, and Bronchiectasis. Obstructive Airway Disease also imposes an economic burden and increases the out-of-pocket expenditure of the patient and the country. However, the majority of cases were remained undiagnosed despite their high prevalence. A report stated that about 60% of cases of chronic obstructive pulmonary disease remained undiagnosed. **Material & Methods:** The present prospective study was conducted at the department of respiratory medicine of our tertiary care hospital. The study duration was of one year from January 2014 to December 2014. A sample size of 100 was calculated at a 95% confidence interval at a 5% acceptable margin. Patients were enrolled from outdoor and from the ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before the start of the study. Written informed consent was taken from each study participant.

Results: In the present study, on the assessment of obstructive airway disease on the basis of smoking pattern it was found that patients who were current smokers had maximum airflow obstruction (11%), out of the 8 patients had mild obstruction, 3 had moderate obstruction, 1 had a severe obstruction and 1 had a very severe obstruction. 1% of patients who never had a smoking habit had mild obstructive airway disease. 2% of Patients who were ex-smokers had obstructive airway disease, out of them 1 patient had a mild obstruction and 1 had a moderate obstruction. This difference was statistically significant (P value<0.05). **Conclusion:** We concluded from the present study that Patients who were current smokers had maximum airflow obstruction compared to patients who never had smoking habits and patients who were ex-smokers.

Keywords: Obstructive Airway Disease, Smoking, Spirometry.

INTRODUCTION:

Asymptomatic Airflow Obstruction causes major health problems related to lung diseases worldwide, along with stress on the health care infrastructure of the country. In previous research, it was found that obstructive Airway

Disease was reported frequently and often presented with complications. however, the prevalence of airflow obstruction with the respiratory function was well documented.(1) The most commonly seen obstructive airway

diseases are COPD, Asthma, Bronchitis, Bronchiolitis, and Bronchiectasis. Obstructive Airway Disease also imposes an economic burden and increases the out-of-pocket expenditure of the patient and the country.(2) However, the majority of cases were remained undiagnosed despite their high prevalence. A report stated that about 60% of cases of chronic obstructive pulmonary disease remained undiagnosed.(3)

In the current scenario, only symptomatic patients visited healthcare facilities for a spirometry test, whereas patients with no symptoms were ignored.(4) in various studies, it was reported that less than 10% of cases who were screened by spirometry had severe or very severe obstructive Airway Disease.(5) There were very little research conducted to find out the undiagnosed airflow obstruction, and limited data is available for therapeutic effectiveness and the role of programs for detecting undiagnosed airflow obstruction.(6) The present study was conducted to assess the association of smoking with Obstructive Airway Disease.

MATERIALS & METHODS

The present prospective study was conducted at the department of respiratory medicine of our tertiary care hospital. The study duration was of one year from January 2014 to December 2014. A sample size of 100 was calculated at a 95% confidence interval at a 5% acceptable margin of error by epi info software version 7.2. Patients were enrolled from the outdoor department and the ward by simple random sampling. Institutional Ethics Committee Clearance was obtained before the start of the study and written and informed consent for the procedure was

obtained from all the patients. Strict confidentiality was maintained with patient identity and data and not revealed, at any point in time.

The data were collected by detailed history, general physical and clinical examination from each patient after taking the written consent. Patients with not previously diagnosed Obstructive Airway disease and patients with no evidence of any physical disease were included in the study. Patients with previously diagnosed Obstructive Airway Disease, patients presenting with symptoms of Obstructive Airflow Obstruction, and patients who were unable to perform Spirometry were excluded from the present study. All the enrolled study participants were subjected to routine laboratory investigations and Spirometry (As per the ATS guidelines). On a follow-up visit, the same data were recorded and compared. All the data was recorded on a Microsoft Excel spreadsheet and data analysis was done at 10% alpha and 90% confidence interval using SPSS v22 software. Test of significance was applied on collected and organized data and a p-value less than 0.05 was considered as a statistically significant association between study variables.

RESULTS

In the present study, we enrolled 100 asymptomatic patients with obstructive airway disease. Out of the total study participants, 34% were females and 66% were males. The mean age of males in the study population was 42.8 ± 6.3 years and the mean age of females in the study population was 43.1 ± 6.8 years. Out of the total study participants, the majority of patients were belonging to the age group of 40 to 60

years of age i.e., 49%. On the assessment of pulmonary function test, it was found that 74% of patients had normal PFT, 16% of patients had obstructive PFT and 10% of patients had restrictive PFT. (Table 1)

Table no. 1 Distribution of study participants on the basis of Airflow obstruction.

Pulmonary function test	No. of Patients (%)
Normal PFT	74%
Obstructive PFT	16%
Restrictive PFT	10%

In the present study, on the assessment of obstructive airway disease by GOLD – Staging it was found that out of total study participants, 8% of patients had mild obstruction (Stage 1), 6% had moderate obstruction (Stage 2), 3% had severe obstruction (Stage 3) and 1% had very severe obstruction (Stage 4). (Table-2)

Table no. 2 Distribution of study participants on the basis of Severity of Airflow obstruction

Obstructive Airway Disease	No. of Patients (%)
Mild	10%
Moderate	4%
Severe	1%
Very severe	1%

In the present study, on the assessment of obstructive airway disease on the basis of smoking pattern it was found that patients who were current smokers had maximum airflow obstruction (11%), out of them 8 patients had mild obstruction, 3 had moderate obstruction, 1 had a severe obstruction and 1 had a very severe obstruction. 1% of patients who never had a smoking habit had mild obstructive airway disease. 2% of Patients who were ex-smokers had obstructive airway disease, out of them 1 patient had a mild obstruction and 1 had a moderate obstruction. This difference was statistically significant (P value<0.05). (Table-3)

Table no. 3 Distribution of study participants on the basis of Severity of Airflow obstruction and Smoking Status

Smoking Status	Mild Obstruction	Moderate Obstruction	Severe Obstruction	Very Severe Obstruction		p-Value
Never Smoker	1	0	0	0	1	<0.05
Current Smoker	8	3	1	1	13	
Ex-Smoker	1	1	0	0	2	

DISCUSSION

In the present study, we enrolled 100 asymptomatic patients with obstructive airway disease. Out of the total study participants, 34% were females and 66% were males. The mean age of males in the study population was 42.8 ± 6.3 years and the mean age of females in the study population was 43.1 ± 6.8 years. Out of the total study participants, the majority of patients were belonging to the age group of 40 to 60 years of age i.e., 49%. On the assessment of pulmonary function test, it was found that 74% of patients had normal PFT, 16% of patients had obstructive PFT and 10% of patients had restrictive PFT. Similar results were obtained in a study conducted by David B Coultas et al among patients for asymptomatic obstructive airway disease and found that the overall prevalence of undiagnosed airflow obstruction was 12% and they reported males were more commonly affected than females.(7) Similar results were obtained in a study conducted by Miravittles M et al among patients for asymptomatic obstructive airway disease and found that the overall prevalence of undiagnosed airflow obstruction was 11% and they reported males were more commonly affected than females.(8)

Similar results were obtained in a study conducted by Dickinson JA et al among the general population for asymptomatic obstructive airway disease and found that the overall prevalence of undiagnosed airflow obstruction was 9% and they also reported males were more commonly affected than females.(9) Similar results were obtained in a study conducted by Chol Shin et al among patients for asymptomatic obstructive airway disease and found that the

overall prevalence of undiagnosed airflow obstruction was 12% and they reported males were more commonly affected than females.(10)

In the present study, on the assessment of obstructive airway disease by GOLD – Staging it was found that out of total study participants, 8% of patients had mild obstruction (Stage 1), 6% had moderate obstruction (Stage 2), 3% had severe obstruction (Stage 3) and 1% had very severe obstruction (Stage 4). (Similar results were obtained in a study conducted by Chol Shin et al among patients for asymptomatic obstructive airway disease and found the nearly similar result to the present study.(10) Similar results were obtained in a study conducted by Roeland MM et al among patients for asymptomatic obstructive airway disease and found that out of 702 patients of asymptomatic obstructive airway disease they reported 210 (29.9%) patients had mild airflow obstruction (GOLD stage 1) and 25.9% patients had moderate airflow obstruction (GOLD stage 2).(11)

In the present study, on the assessment of obstructive airway disease on the basis of smoking pattern it was found that patients who were current smokers had maximum airflow obstruction (11%), out of them 8 patients had mild obstruction, 3 had moderate obstruction, 1 had a severe obstruction and 1 had a very severe obstruction. 1% of patients who never had a smoking habit had mild obstructive airway disease. 2% of Patients who were ex-smokers had obstructive airway disease, out of them 1 patient had a mild obstruction and 1 had a moderate obstruction. This difference was statistically significant (P value<0.05). Similar results were obtained in a study conducted by

Coultas et al among patients for asymptomatic obstructive airway disease and found that patients who were current smokers had maximum airflow obstruction compared to patients who never had smoking habits and patients who were ex-smokers.(12)

CONCLUSION

We concluded from the present study that Patients who were current smokers had maximum airflow obstruction compared to patients who never had smoking habits and patients who were ex-smokers. Therefore, the use of Spirometry should be incorporated in all routine health check-ups.

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