ASSESSMENT OF MAGNITUDE OF ASYMPTOMATIC AIRFLOW OBSTRUCTION

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Conflict of interest: Nil

Abstract

Background: Asymptomatic Airflow Obstruction causes major health problem related to lung diseases worldwide, along with stress on health care infrastructure of the country. Obstructive Airway Disease also imposes economic burden and increase the out of pocket expenditure of the patient and the country.

Material & Methods: The present prospective study was conducted at GCS Medical College, Hospital and Research Centre, Ahmadabad from January 2016 to December 2016. A sample size of 100 was calculated at 95% confidence interval at 10% acceptable margin. Patients were enrolled from outdoor and from ward by simple random sampling. Clearance from Institutional Ethics Committee was taken before start of study. Written informed consent was taken from each study participant.

Results: In the present study, on the assessment of pulmonary function test, it was found that 70% of patient had normal PFT, 18% of patients had obstructive PFT and 12% of patients had restrictive PFT. 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)

Conclusion: there was high burden of undiagnosed asymptomatic obstructive airway disease reported among patients of different severities with males were more commonly affected than females. Therefore, use of Spirometry should be incorporate in all routine health check-ups.

Key words: Obstructive Airway Disease, Asthma, Spirometry.

INTRODUCTION

Asymptomatic Airflow Obstruction causes major health problem related to lung diseases worldwide, along with stress on health care infrastructure of the country. Obstructive Airway Disease also imposes economic burden and increase the out of pocket expenditure of the patient and the country.^[1]

In previous researches it was found that obstructive Airway Disease were reported frequently and often present with complications. The most commonly seen obstructive airway diseases are COPD, Asthma, Bronchitis, Bronchiolitis and Bronchiectasis. However, majority of cases were remained undiagnosed despite of its high prevalence. A report stated that, about 60% cases of chronic obstructive pulmonary disease were remain undiagnosed.^[2]

In current scenario, only symptomatic patients visited to healthcare facilities for spirometry test, whereas patients with no symptoms were ignored.^[3] 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.^[4] There were very few researches 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.^[5] However, prevalence of airflow obstruction with respiratory function was well documented.^[6] Present study was conducted to assess the prevalence of asymptomatic airflow obstruction.

MATERIALS & METHODS

The present prospective study was conducted at GCS Medical College, Hospital and Research Centre, Ahmadabad from January 2016 to December 2016. A sample size of 100 was calculated at 95% confidence interval at 10% acceptable margin of error by epi info software version 7.2. Patients were enrolled from outdoor and from ward by simple random sampling. Clearance from Institutional Ethics Committee was

taken before start of study. Written informed consent was taken from each study participant.

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 present study. All the enrolled study participants were subjected to routine lab investigations and Spirometry (As per the ATS guidelines).

Data analysis was carried out using SPSS v22. All tests were done at alpha (level significance) of 5%; means a significant association present if p value was less than 0.05.

RESULTS

In the present study, we enrolled 100 asymptomatic patients of obstructive airway disease. Out of the total study participants 26% were females and 74% were males. The mean age of males in study population was 51.28 years and mean age of females in study population was 48.62 years. Out of the total study participants, majority of patients were belonging to age group of 50 to 60years of age i.e., 42.6%. on the assessment of pulmonary function test, it was found that 70% of patient had normal PFT, 18% of patients had obstructive PFT and 12% of patients had restrictive PFT. (Table 1)

Table 1: Distribution of Airflow obstruction

Pulmonary function test	No. of Patients (%)
Normal PFT	70%
Obstructive PFT	18%
Restrictive PFT	12%

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 2: Prevalence of Severity of AO

Obstructive Airway Disease	No. of Patients (%)
Mild	8%
Moderate	6%
Severe	3%
Very severe	1%

DISCUSSION

In the present study, we enrolled 100 asymptomatic patients of obstructive airway disease. Out of the total study participants 26% were females and 74% were males. The mean age of males in study population was 51.28 years and mean age of females in study population was 48.62 years. Out of the total study participants, majority of patients were belonging to age group of 50 to 60years of age i.e., 42.6%. on the assessment of pulmonary function test, it was found that 70% of patient had normal PFT, 18% of patients had obstructive PFT and 12% 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 Miravitlles 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 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 Chul Shin et al among patients for asymptomatic obstructive airway disease and found 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]

CONCLUSION

We concluded from the present study that there was high burden of undiagnosed asymptomatic obstructive airway disease reported among patients of different severities with males were more commonly affected than females. Therefore, use of Spirometry should be incorporate in all routine health check-ups.

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