Assessment of Cases of COPD in Known Population- A Clinical Study

Vaibhav Gupta[1]

[1]Associate Professor, Department of T.B. & Chest Diseases, Teerthanker Mahaveer Medical College & Research Centre, TMU, Moradabad, India.

ABSTRACT

Background: To assess cases of COPD in known population. **Methods:** Sixty- eight patients with COPD of both genders were enrolled in present study. History of smoking, type of cooking fuel combustion, family history, education level etc. was recorded. A thorough physical and clinical examination was performed in all patients. **Results:** Out of 68 COPD patients, male comprised 40 and female 28. Education was primary in 44, secondary in 10 and graduation in 2. BMI was underweight in 38, overweight in 12 and normal in 18 cases. Family history was positive in 40 and fuel used was LPG in 10, kerosene in 20 and wood in 38. A significant difference was observed (P< 0.05) [Table 2, Figure 1]. **Conclusion:** Chronic obstructive pulmonary disease is becoming common nowadays. Though underweight is one of the major cause but air pollution caused by combustion fuel cannot be overlooked.

Keywords: COPD, Education, Fuel, Underweight.

INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a major cause of disability and death all over the world. In India, it is recognized as a major health problem requiring management from the primary health care level onwards.[1] It is responsible for a huge social and economic burden for the health care infrastructure. According to World Health Organization, the worldwide prevalence of COPD in 1990 was estimated at 9.34/1000 in men and 7.33/1000 in women.[2]

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.[3]

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. 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.[4] Biomass combustion results in high levels of pollutants such as benzopyrene, carbon monoxide, formaldehyde, oxides of nitrogen and sulphur, and benzene that are a major source of respiratory irritants leading to COPD. Common symptoms includes chronic cough, chronic phlegm production, shortness of breath while doing things you used to be able to do, not being able to take a deep breath and wheezing.[5] Considering this, the present study was attempted with the aim to assess cases of COPD in known population.

MATERIALS AND METHODS

Sixty- eight patients with COPD of both genders were enrolled in present study once they provided written consent. Ethical approval for the study was obtained beforehand. For the diagnosis of COPD, three criteria were used. 1. cough with expectoration on most days of the week for 3 months of the year for at least 2 consecutive years, 2. forced expiratory volume in 1 second (FEV1) and (FEV1)/FVC value lower than 80% predicted as diagnosed by spirometry, and 3. reversibility test result of B15% or B200 ml improvement in FEV1 compared to prebronchodilator FEV1.

Case history proforma was created which comprised of patient information such as name, age, gender etc. History of smoking, type of cooking fuel combustion, family history, education level etc. was recorded. A thorough physical and clinical examination was performed in all patients. Results of the present study after recording all relevant data were subjected for statistical inferences using chi-square test. The level of significance was significant if p value is below 0.05 and highly significant if it is less than 0.01.

Name & Address of Corresponding Author
Dr. Vaibhav Gupta,
Associate Professor,
Department of T.B. & Chest Diseases,
Teerthanker Mahaveer Medical College & Research Centre, TMU,
Moradabad, India.

RESULTS

Table 1: Distribution of patients.

Total		
Gender	Males	Females
Number	40	28

Out of 68 COPD patients, male comprised 40 and female 28 [Table 1].

Table 2: Assessment of parameters.

Parameters	Variables	Number	P-value
Education	Primary	44	<0.05
	Secondary	10	
	Graduation	2	
BMI (Kg/m^2)	Underweight	38	<0.05
	Overweight	12	
	Normal	18	
Family history	Yes	40	<0.05
	No	28	
Fuel used	LPG	10	<0.05
	Kerosene	20	
	Wood	38	

Education was primary in 44, secondary in 10 and graduation in 2. BMI was underweight in 38, overweight in 12 and normal in 18 cases. Family history was positive in 40 and fuel used was LPG in 10, kerosene in 20 and wood in 38. A significant difference was observed (P< 0.05) [Table 2, Figure 1].
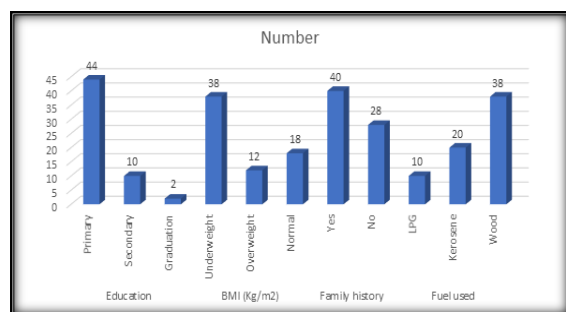

Figure 1: Assessment of parameters

DISCUSSION

Patients with COPD generally present with chronic cough and sputum production with or without dyspnoea. 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. In Africa, these patients might frequently be misdiagnosed and treated for pulmonary tuberculosis (TB) or heart failure. Moreover, the lack of expertise and diagnostic tools such as spirometers are major bottlenecks for the proper diagnosis and treatment of patients with COPD.[6] Although not specifically embodied in the definitions nor discussed in detail in the COPD guidelines, optimal clinical practice would dictate that the diagnosis of COPD should only be made after other disorders that are associated with airflow limitation are excluded.[7] History and physical examination may be helpful in excluding other diagnoses and can guide the use of other tests in patients in whom the differential diagnosis includes disorders other than COPD. In addition, the use of chest imaging, particularly chest CT scans, is an important and often overlooked diagnostic tool in COPD when there is a need to exclude other conditions.[8] We undertook present study to assess cases of COPD in known population.

Our study showed that out of 68 COPD patients, male comprised 40 and female 28. Saetta et al,[9] in his study stated that COPD among females are due to air pollution caused by combustion fuel. He found low prevalence of smoking among females. Middle status patients were seen in 65% of cases. 20% were high status and 15% were low status patients. We found that 55% patients were from urban area and 40% were from rural area. 60% of patients had more than high school education while 40% had less than high school education.

It was seen that education was primary in 44, secondary in 10 and graduation in 2. BMI was underweight in 38, overweight in 12 and normal in 18 cases. Family history was positive in 40 and fuel used was LPG in 10, kerosene in 20 and wood in 38. Good clinical practice would suggest that a chest CT scan be considered in two distinct clinical scenarios: when the clinician's differential diagnosis suggests there may be a diagnosis other than COPD, and in patients presenting with non-reversible airflow limitation without a history of sufficient environmental or occupational respiratory exposures known to cause COPD.[10] The ATS/ERS COPD statement notes that a chest X-ray is useful in differential diagnosis, and the GOLD guidelines indicate that a chest CT scan may be helpful in differential diagnosis. Health care practitioners should carefully consider what type of imaging study would provide the most robust information to assist in their clinical differential diagnosis.[11] Disorders that may be included in the differential diagnosis of patients with non-reversible airflow limitation include bronchiolitis, bronchiectasis, panbronchiolitis, chronic respiratory infections or their sequellae, hypersensitivity pneumonitis, asthma, congestive heart failure, lung cancer, lymphangioleiomyomatosis, sarcoidosis, and tracheobronchomalacia.[12]

Aggarwal et al,[13] in his study stated that COPD among females are due to air pollution caused by combustion fuel. He found low prevalence of smoking among females. Barthwal MS et al,[14] carried out spirometry evaluation in smokers more than 40 years of age and with smoking index more than 200, 26% had obstruction and in smokers less than 40 years of age and smoking index less than 200, 5.43% had obstruction (p < 0.005), the study revealed that the early detection of COPD by spirometry especially in smokers more than 40 years

of age and with smoking index of more than 200 is likely to reduce the overall burden of disease.

Stratelis G et al,[15] carried out a study to find that whether a combination of spirometry and brief smoking cessation advice to smokers with COPD and in this study, intervention was performed by annual spirometry, brief smoking cessation advice by the nurse, and a personal letter from the physician regarding lung function during the three years. The point prevalence abstinence after 3 years was significantly higher in smokers with diagnosed COPD than in smokers with normal lung function (29% and 14%, respectively).

CONCLUSION

Authors found that chronic obstructive pulmonary disease is becoming common nowadays. Though underweight is one of the major cause but air pollution caused by combustion fuel cannot be overlooked.

REFERENCES

1. The COPD guidelines group of the standards of care committee of the BTS. BTS guidelines for the management of chronic obstructive pulmonary disease. Thorax 1997;52(5):S1-28.
2. American Thoracic Society. Standards for the diagnosis and care of patients with chronic obstructive pulmonary disease. Am J Respir Crit Care Med 1995;152.
3. Soriano JB, Zielinski J, Price D. Screening for and early detection of chronic obstructive pulmonary disease. The Lancet. 2009 Sep 4;374(9691):721-32.
4. Gil-Guillen V, Orozco-Beltrán D, Munuera CV, PlazaSirvent C, Lorca-Amorrich P, López-Pineda A, VelaTroncoso MP, Soler JJ, Yarza-Cañellas M, Fernández A, Rosado-Bretón L. FUMEPOC: Early detection of chronic obstructive pulmonary disease in smokers. BMC public health. 2011 May 31;11(1):413.
5. Jindal SK, Malik SK, Datta BN. Lung cancer in Northern India in relation to age, sex and smoking habits. Europ J Respir Dis 1987; 70:23-28.
6. Qualker PH. Tammeling GJ, Coles JE, et al. Lung volumes and forced ventilatory flows. Eur Respir J 1993;6:5-40.
7. Siafakas NM, Vermeire P, Pride NA, Paoletti P, Gibson J, Howard P, Yernault JC, Decramer M, Higenbottam T, Postma DS, Rees J. Optimal assessment and management of chronic obstructive pulmonary disease (COPD). European Respiratory Journal. 1995 Aug 1;8(8):1398-420.
8. Global Initiative for Chronic Obstructive Lung Disease. Global strategy for the diagnosis, management and prevention of chronic obstructive lung disease. NHLBI/WHO workshop report: pocket guide to COPD diagnosis, management and prevention, a guide for physician and nurses (updated 2003).
9. Saetta M, Turato G, Maestrelli P, Mapp CE, Fabbri LM. 52. Cellular and structural bases of chronic obstructive pulmonary disease. Am J Respir Crit Care Med. 2001; 163:1304-9.
10. Murray CJL, Lopez AD. Evidence based health policy lessons from the Global Burden of Disease Study. Science. 1996; 274: 740-3.
11. Jindal SK, Aggarwal AN, Gupta D. A review of population studies from India to estimate national burden of chronic obstructive pulmonary disease and its association with smoking. Indian J Chest Dis Allied Sci. 2001; 43: 139-47.
12. Sikand BK, Pamra SP, Mathur GP. Chronic bronchitis in Delhi as revealed by mass survey. Indian J Tuberc. 1966; 13: 94-101.
13. Aggarwal AN, Chaudhry K, Chhabra SK, D'Souza GA, Gupta D, Jindal SK, et al for Asthma Epidemiology Study Group. Prevalence and risk factors for bronchial asthma in Indian adults: a multicentre study. Indian J Chest Dis Allied Sci. 2006; 48: 13-22.
14. Barthwal MS, Singh S. Early detection of chronic obstructive pulmonary disease in asymptomatic smokers using spirometry. J Assoc Physicians India. 2014 Mar;62(3):238-42.
15. Stratelis G, Mölstad S, Jakobsson P, Zetterström O. The impact of repeated spirometry and smoking cessation advice on smokers with mild COPD. Scandinavian journal of primary health care. 2006 Jan 1;24(3):133-9.