Available online at www.iponlinejournal.com

Journal homepage: www.innovativepublication.com/journal/ijirm

Original Research Article

A study on clinico social profile of patients attending Katuri Medical College Hospital, Guntur

Mandava Venu[1], Bhaskararao Nalamala[2*], Thokala Sivayya[3]

Associate Professor, [1]Katuri Medical College and Hospital, Guntur, Andhra Pradesh, [2]Rajiv Gandhi Institute of Medical Sciences, Kadapa, Andhra Pradesh, [3]Guntur Medical College, Guntur, Andhra Pradesh, India

Article Info

Received: 26th June, 2019

Accepted: 8th August, 2019

Published Online: 18th September, 2019

Keywords: COPD; Smoking; PAH (Pulmonary Arterial Hypertension).

Abstract

Background: As COPD is fast emerging like epidemic spread by giving a threat to world with the increased proportion of cigarette smoking in developing countries especially India and China and is expected to become the third leading cause of death in the world by 2020, the present study was taken up to evaluate the clinical social distribution of the disease for the purpose of better understanding.

Methodology: The setting of the study was at the Katuri Medical College Hospital, Guntur, Andhra Pradesh. A cross sectional study was conducted by examining 110 COPD patients of both sex at the out-patients department of Pulmonary Medicine.

Results: In this study about 70% were males and 30% were females. Maximum about 60.9% were belonged to 40-60 years of age group with the mean age of 58.5 years and M±2SE = 56.86 – 60.14 at 95% CI. Agriculture is the main occupation (31.8%) and 59% were smokers.

Conclusions: Among all the COPD patients about 51% were developed emphysema and bronchitis, 8% cardiomegaly with enlarged pulmonary artery. And by Echocardiography it was identified that 4% developed mild PAH, followed by 21% moderate PAH, 9% Severe PAH, 18% RV hypertrophy, 4% Cardiac Arrhythmias and 8% Cardiac failure significantly.

Introduction

Chronic obstructive pulmonary disease (COPD) is one of the major cause of chronic morbidity & mortality in the world among the adult population and occupies 4th leading cause of deaths in the world [1] and projected to be 3rd leading cause of death by 2030 worldwide because of continued exposure to risk factors and aging of the population [2]. According to statistical projections COPD will be 7th leading cause of disability adjusted life years (DALY) lost world wide by 2030. The Global Burden of Disease Study reports a prevalence of 251 million cases of COPD globally in 2016. Globally, it is estimated that 3.17 million deaths were caused by the disease in 2015 (that is, 5% of all deaths globally in that year). More than 90% of COPD deaths occur in low and middle income countries [3].

The primary cause of COPD is exposure to tobacco smoke (either active smoking or second hand smoke [3]. Smoking significantly not only increases incidence and prevalence of disease, but also it causes high morbidity and mortality among these patients and is directly proportional to duration and consumption of number cigarettes per day (Smoking Index) [4].

Besides inflammation caused by smoking and air pollution etc, two other processes are involved in the pathogenesis of COPD that is an imbalance between proteases and anti proteases and between oxidants and antioxidants (Oxidative stress) in the lungs [5,6].

As we all know that COPD is characterized by slowly progressive air flow obstruction, resulting in dyspnoea, exercise limitation and pulmonary arterial hypertension which causes major cardiovascular complications. Right ventricular (RV) dysfunction is also common in COPD patients particularly in those with low oxygen saturation which contributes to overall decrease in functional status and high mortality. So its early recognition and treatment may lead to prolonged survival and improved quality of life. Thus this study was under taken to study the socio clinical profiles of the COPD patients attending our teaching hospital by history taking, clinical examination includes chest X-ray and Echocardiography tests etc, to know their health status and early recognition of cardiac involvement and to plan the management to prolong their life.

Materials and Methods

The current study was conducted during the period from January 2018 to December 2018 at OP Department of Pulmonary medicine, Katuri Medical College Hospital, Guntur, AP, India. Basing on the hospital census the prevalence of the COPD patients attending chest OP was found to be 50%. So the sample size was calculated buy using

*Corresponding Author: Bhaskararao Nalamala, Associated Professor, Rajiv Gandhi Institute of Medical Sciences, Kadapa, Andhra Pradesh, India

Email: baskarpulmonary@gmail.com

http://doi.org/10.18231/j.ijirm.2019.042

the formula N= 4PQ/ L^2 where P =50%, Q= 100-P i.e., 50%, L = 10 % absolute error so the N = 100 by adding 10% attrition finally 110 COPD patents were taken into study. An ethical committee approval and written informed consent of study subjects was obtained.

And among all the COPD patients of both sex attending chest OP during the above period, every alternate patient was selected as study subject until the required sample is obtained after receiving the informed consent. They were interviewed by using a pretested Pro-forma including information about their socio-demographic profiles like age, sex, occupation and habits like smoking etc. And they were also examined clinically subjecting them to undergo ECG, Echo cardiography, etc.

The collected data was analysed and presented by using appropriate statistical techniques and methods like measures of central tendency, dispersion, percentages, proportions, standard error of mean and tests of significance etc so as to achieve the prescribed objectives like 1. To know the socio-demographic profiles and 2. To study the clinical pattern of distribution of disease etc with the help of computer software. The study observations were discussed in the light of published material of various authors of relevant studies and accordingly the conclusions and recommendations were made.

Results

Table 1: Age and Sex distribution of Study subjects with severity of COPD

Age Group	Moderate COPD		Severe COPD		Very Severe COPD		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Total
40-50	11	5	3	1	0	0	14	6	20
51-60	28	11	3	2	2	1	32	15	47
61-70	18	8	5	2	1	1	24	11	35
71-80	5	2	0	0	0	0	5	2	7
>80	1	0	0	0	0	0	1	0	1
Total	**62**	**27**	**11**	**5**	**3**	**2**	**77**	**33**	**110**

M± 2SE = 58.5 ± 1.64

1. In this study it was observed that among the total study subjects males were 70% (77) and females were 30% (33). Related to age majority of the study subjects were observed between 51- 60 years 47(42.7%) followed by 61-70 years 35(31.8%) and 40-50 years 20(18%).
2. And it is also identified that related to severity of the disease moderate COPD patients were more in number which accounts for 89(81%).

Table 2: Distribution of smoking with occupation

S. No.	Occupation	Moderate COPD Smoking		Severe COPD Smoking		Very Severe COPD		Total Smoking		
		Yes	No	Yes	No	Yes	No	Yes	No	Total
1.	Agriculture related	23	16	5	2	2	1	30	19	49
2.	Daily Wage workers	17	13	3	1	0	1	20	15	35
3.	Drivers	6	4	2	1	1	0	9	5	14
4.	Others	4	6	1	1	0	0	5	7	12
Total		**50**	**39**	**11**	**5**	**4**	**2**	**64**	**46**	**110**

1. Related to occupation majority of the study subjects were confined to agriculture related 49 (44.5%) followed by daily wage workers 35(31.8%) and drivers 14(12.7%).
2. Among the total study group history of smoking was found to be 59%.

Table 3: Chest X-ray findings among the study subjects

S. No.	X-Ray findings	Number of COPD Patients	Percentage
1.	Chronic Bronchitis	30	27.2%
2.	Emphysema	15	13.6%
3.	Both Emphysema of Bronchitis	56	51%
4.	Cardiomegaly with Enlarged Pulmonary Artery	9	8.1%
Total		**110**	**100%**

1. In this study among the COPD patients mixed findings like emphysema and bronchitis together was observed as 51% followed by chronic bronchitis 27.2%., emphysema 13.6% and cardiomegaly with enlarged pulmonary artery 8.1% in chest X-ray.

Table 4: Presentation of Echocardiography findings with severity of the disease

SI. No.	Echo Findings	Moderate COPD	Severe COPD	Very Severe COPD	Total
1.	Mild PAH	43	2	0	45(41%)
2.	Moderate PAH	18	0	5	23(21%0
3.	Severe PAH	5	1	4	10(9%)
4.	RV Hypertrophy	13	4	3	20(18%)
5.	Cardiac Arrhythmias	2	1	1	4(4%)
6.	Cardiac Failure	5	2	1	8(7%)
Total		**89**	**16**	**5**	**110(100%)**

$P < 0.001$

Related to ECHO findings it was noticed that about 41% of study subjects developed mild PAH followed by 21% Moderate PAH, 9% Severe PAH, 18 % RV hypertrophy, 4% Cardiac Arrhythmias and 8% Cardiac failure.

Discussion

In this study it was observed that majority of COPD patients (study subjects) belongs to 40-60 years age group i.e., economically productive age and this figure correlates with the figure of Rathi et al., study [7] (53-45 years), Jain et al., study [8] (53), Vikhe et al., study [9] (60.1). And regarding sex distribution males were 70% and females were 30% in this study which is also coincides with the figures of Rathi et al., [7] (74% & 26%), Krishnan et al., study[10] (84% & 16%), and slight variation with Kinagi et al., study[11] (54% & 45%). As the COPD is mainly associated with chronic smoking factor, male dominance was observed in all the studies. And about 59% of total study subjects were habituated to smoking when compared to Rathi et al., study [7] (61%), Deve et al., study [12] (87%).

Related to occupation majority of the group were belonged to Agriculture related (44.5%) followed by daily wage workers (31.8%) and drivers & others (23.6%). In Rathi et al., study [7] it was (30%) in agriculture related occupation. So common factor noticed in all the above occupations was exposure to smoke, dust and noxious gases etc were implicated as the cause for development of chronic airflow obstruction.

In our present study by studying the chest X-ray it was observed that about 51% of the COPD patients had features suggestive of emphysema and bronchitis Significantly followed by more than 8% Cardiomegaly with enlarged Pulmonary artery and these figure were comparable with the figures of Agarwal et al., study [13], Vikhe et al., study [9].

Regarding echocardiography findings it was observed that about 41% of study group had mild PAH followed by 21% moderate PAH, 9% Severe PAH, 18% RV hypertrophy, 4% cardiac arrhythmias and 8% cardiac failure significantly which are very much comparable with the Figure of other Indian studies like Rati et al., study [7], Agarwal et al study [13], Jain et al., study [8], Vikhe et al., study [9], Krishnan et al., study [10] and Hasan et al., study [14].

Conclusions

As the majority of the study subject's occupation was associated with wide explore to noxious gases and variety of dust, it is important to educate them to take specific control & personal protective measures like wearing mouth and face mask, sufficient ventilation at work place during their time of work.

Smoking as a major risk factor concerned to COPD, we need to educate the target population by means of various health education & counselling methods using social, electronic and print media so as to achieve cessation at required levels.

By means of using simple non invasive laboratory investigations like chest X-ray ECG and 2D echocardiography, it is possible to detect easily and early the adverse consequences of COPD like PAH and RV dysfunction etc directing to moderate and Severe and OPD patients will allow us to take early intervention to prolong the life span of the effected individuals.

Source of funding

None.

Conflict of interest

None declared

Acknowledgements

None.

References

1. World Health Report, Geneva: World Health Organisation, Available from URL: http://www.who.int/whr/2000/en/statistics/htm;2000. Last accessed 2019 on August 1.
2. Lopez AD, Shibuya K, Rao C, Chronic Obstructive pulmonary disease: current burden and future projections. *Eur Respir J.* 2006;27:397-412.

3. Chronic Obstructive Pulmonary disease (COPD) – World Health Organisation. Available from URL: https/www.int>news>factsheets>Detail, Dec 1, 2017. Last accessed 2019 on August 1.
4. Hogg JC. Pathophysiology of airflow limitation in chronic obstructive pulmonary disease. *Environ Health Perspect.* 200;4:7-15.
5. Rahman I. Oxidative stress in pathogenesis of chronic obstructive pulmonary disease: cellular and molecular mechanisms. *Cell Biochem Biophys.* 2005;43:167-88.
6. Malhotra D, Thimmulappa R, Navas-Acien A, Decline in NRF2-regulated antioxidants in chronic obstructive pulmonary disease lungs due to loss of its positive regulator, DJ-1. *Am J Respir Crit Care Med.* 2008;178(6):592-604.
7. Rathi C, Wanjari A, Acharya S. Pulmonary Hypertension in Mild-Moderate COPD: An Early Link. *J Evidence Based Med Healthc.* 2015;2(42):7330-40.
8. Jain J, Soni P, Apte S, Chanchlani R. A Study of Correlation between the Echocardiography Changes with the Duration and Severity of Chronic Obstructive Pulmonary Disease". *J Evol Med Dent Sci.* 2014;3(8):1997-2002.
9. Vikhe VB, Shede PS, Patil RS, Tamakuwala KK, Patil AS, Gupta AP, et al. Cardiovascular complications in chronic obstructive pulmonary disease with reference to 2d echocardiography findings. *National J Med Res.* 2013;3(4).
10. Krishnan DR, Srihari B. A study on the severity of right ventricular dysfunction in correlation with the severity of Lung dysfunction in Chronic Obstructive Pulmonary Disease patients – COPD. *Am J Sci Med Res*. 2015;1(1):112-9.
11. Kinagi S, Patil S, Afiya S. Analysis of Chronic Obstructive Pulmonary Disease with Clinical Parameters, ECG and Echo. *J Evol Med Dent Sci.* 2014;3(57):12864-77.
12. Dave L, Dwivedi P, Srivastava N, Yadav BS, Dohre R. A study of cardiovascular manifestations of COPD. *Int J Res Health Sci.* 2014;2(3):812-17.
13. Agarwal K, Sing D, Shital P, Purohit G, Chodhary CR, Sameer Ali Cardiovascular Alternations in COPD what hurts the patient the most. *J Med Educ Res.* 2013;3(1):6.
14. Hasan A, Ashraf MU, Naaz, SR. Bhargava, Juwairia Ashraf Vo. A Study of clinical and echocardiographic profile of patients of chronic obstructive pulmonary disease helping in early diagnosis of cor pulmonale. *Int J Enhanced Res Med Dent Care.* 2014;1(2):5-8.

How to cite this article: Venu M, Nalamala B, Sivayya T. A study on clinico social profile of patients attending Katuri Medical College Hospital, Guntur. *Indian J Immunol Respir Med.* 2019;4(3):190-3.