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Original Research Article

A study of clinical profile of patients with chronic pulmonary obstructive disease at a tertiary care centre in North Karnataka, India

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ABSTRACT

Background: Chronic pulmonary obstructive disease (COPD) has been responsible for the decreased quality of life as well as increased morbidity and mortality. Globally it has been estimated that nearly three million die yearly due to COPD and more likely to occupy the third place of mortality by 2030. The objective of the present endeavour was to study clinical profile of patients with chronic pulmonary obstructive disease at a tertiary care centre.
Methods: A hospital based cross sectional study was carried out among 200 cases of COPD. Their detailed history, thorough clinical examination and parameters like hemoglobin, serum creatinine, protein etc were investigated. The presence of co-morbidities was noted.
Results: As the age increased the prevalence of the COPD increased and highest was found out to be in the age group of above 60 years of age. Males were more affected with COPD as compared with females. The male to female ratio was found out to be 2.4:1. The smokers were more compared to the non smokers. The prevalence of smoking among COPD was noted to be 66% compared to 34% as non smokers. Least proportion of patients of the COPD had fever i.e. in 22% of the cases. Cough was found in 83% of the cases. Breathlessness was found out to be in 98% of the cases. 15% of the cases of the COPD had diabetes only as the co-morbidity along with COPD and no other co-morbidity.
Conclusions: Breathlessness was the most common symptom at presentation and diabetes and hypertension were the most common co-morbidities found.

Keywords: Clinical profile, Co-morbidities, Hypertension, Patients, Symptoms

INTRODUCTION

Chronic pulmonary obstructive disease (COPD) has been responsible for the decreased quality of life as well as increased morbidity and mortality. Globally it has been estimated that nearly three million die yearly due to COPD and more likely to occupy the third place of mortality by 2030. It has been further estimated that in India about 30 million suffer from COPD. The prevalence of COPD has been reported as around 3.5% in India. The males (5%) are found to be affected more than females (3.2%).[1]

COPD also contributes significantly to the most years lost due to disability it causes in patients. COPD also puts a lot of extra burden on the pockets of the patients. Around 35,000 cores are being lost alone in India due to COPD. It can cost about 30% of the patient's income on treatment and other issues related to the COPD.[2]

Like a chronic non communicable disease, COPD also has a number of risk factors. They can be genetic or environmental both and all types of risk factors playing their roles. Smoking has been reported and found out to be a major risk factor in COPD. But it itself cannot explain the risk of COPD in many situations though

being implicated as the major risk factor. If the patient refrains from smoking, a major portion of disability can be more likely to be prevented in the COPD patients.[3,4]

Various factors like increasing age and being female poses the risk of COPD. If the lung growth is affected during fetal life then the child is prone to develop the COPD. Improper nutrition also acts as a risk factor for COPD. Repeated infections can lead to the development of COPD. Overcrowding also favors the COPD. Having a family history of COPD is a prominent risk factor for the development of the COPD. Repeated respiratory infections in the childhood are a major risk factor for COPD.[5]

Various risk factors related to the environment are not only the active smoking but also the presence of the passive smoking gives rise to the risk of the COPD. Indoor air pollution, exposure to the gases, dust and fumes at work place, overall air pollution in the cities are some of the more environmental risk factors that give rise to the risk of the COPD.[6]

Present study was carried out to study the clinical profile of patients with chronic obstructive pulmonary disease.

METHODS

The study was a Hospital based cross sectional study conducted at the Department of pulmonary medicine, Karnataka Institute of Medical Sciences, Hubballi, Karnataka, India during December 2015 to July 2017.

Study population

During the study period, out of total patients who attended the outpatient department of pulmonary medicine, 200 patients who were eligible as per the inclusion and exclusion criteria and willing to participate in the present study were included.

Ethical considerations

The protocol was submitted to the scientific research committee and after their approval; it was submitted to the Institution Ethics Committee, Department of pulmonary medicine, Karnataka Institute of Medical Sciences, Hubballi, Karnataka, India.

After their approval the study was initiated and all patients who were eligible as per the inclusion and the exclusion criteria were asked their willingness to get participated in the present study after explaining the nature of the present study.

Inclusion criteria

- Confirmed cases of COPD
- Willing to participate in the present study

Exclusion criteria

- COPD patients with severe associated morbidities
- Bed ridden patients and patients who were unable to give details.

As per the pre designed, pre tested, semi structured study questionnaire which was developed for the present study after extensive review of the literature detailed history was taken and recorded form all participants of the present study. Details like age, sex, smoking habits and symptoms were asked for. Smoking history was taken in detail as to duration of smoking, frequency and dose. Symptoms also were asked as to duration of the symptoms, frequency and any aggravating and relieving factors.

Any associated co-morbidities were also looked for. Details of exacerbations of COPD and hospitalization, Vital parameters and investigations like Hemoglobin, PCV, ESR, Bio-chemical test, Urea, Creatinine, protein, Albumin, ECHO finding, Ejection fraction, BMI, FEV1, 6 min walking distance, Pallor, Icterus, Clubbing, Cyanosis, Lymphadenopathy, Pedal edema

Statistical analysis

Proportions were used for the analysis of the data in the present study.

RESULTS

Table 1 shows age distribution of patients. There were 23% of the COPD patients in the age group of 35-49 years. There were 31% of the COPD patients in the age group of 50-59 years. And the majority of the COPD patients were found in the age group of more than 60 years of age i.e. 46% or almost half. This showed that as the age increased the prevalence of the COPD increased and highest was found out to be in the age group of above 60 years of age.

Table 1: Age distribution of patients.

Age (years)	Number	%
35-49	46	23
50-59	62	31
≥60	92	46
Total	200	100

Table 2: Gender distribution of patients.

Sex	Number	%
Male	142	71
Female	58	29
Total	200	100

Table 2 shows gender distribution of patients. There were 142 male patients with COPD. There were 58 female

patients with COPD. Thus it has been found out that the males were more affected with COPD as compared with females. The prevalence of COPD in males was 71% i.e. almost two third as compared to only 29% among the females i.e. about one third of the cases of the COPD belonged to females. The male to female ratio was found out to be 2.4:1. That for everyone female COPD patient, there were 2.4 males with the COPD.

Table 3: Smoking status of patients with COPD.

Smoking status	Frequency	%
Smokers	132	64
Non smokers	68	34
Total	200	100

Table 3 shows smoking status of patients with COPD. There were 132 patients of the COPD who were smokers at the time of the study. There were 68 patients of the COPD who were not smokers. Thus, it has been found out that the smokers were more compared to the non smokers. The prevalence of smoking among COPD was noted to be 66% compared to 34% as non smokers. Thus, we would have got may be around 132 less number of cases if they were not smoking and only we would have got 66 cases of COPD which were due to other causes than the smoking.

Table 4: Symptoms of patients at presentation.

Symptoms	Number	%
Fever	44	22
Cough	166	83
Breathlessness	196	98

Table 4 shows symptoms of patients at presentation. Almost all i.e. 198 patients of the COPD had presented with symptom of breathlessness as it is a cardinal symptom of the COPD. 166 patients of the COPD presented to our outpatient department of the pulmonary medicine with cough. 44 patients of the COPD presented with fever. Thus, it has been found that the least proportion of patients of the COPD had fever i.e. in 22% of the cases. Cough was found in 83% of the cases. Breathless was found out to be in 98% of the cases.

Table 5: Co-morbidities of patients of COPD.

Co-morbidities	Number	%
Diabetes mellitus only	30	15
Hypertension only	32	16
Diabetes mellitus and hypertension	22	11
Diabetes mellitus, hypertension and hypothyroidism	2	1
Ischemic heart disease	8	4
Chronic liver disease	2	1
No co-morbidity	104	52
Total	200	100

Table 5 shows co-morbidities of patients of COPD. 15% of the cases of the COPD had diabetes only as the co-morbidity along with COPD and no other co-morbidity. 16% of the cases of the COPD had hypertension only as the co-morbidity along with COPD and no other co-morbidity. 11% had diabetes mellitus and hypertension as the co-morbidity along with COPD. 4% had Ischemic heart disease as the co-morbidity along with COPD. 52% had no co-morbidities existing with the COPD. Two patients were found to have chronic liver disease and two were found to have diabetes mellitus, hypertension and hypothyroidism.

Table 6: Smoking status of patients with COPD.

Parameters		Mean	Standard deviation
Vitals	Pulse (beats/min)	91	13
	Systolic blood pressure (mmHg)	126	13
	Diastolic blood pressure (mmHg)	73	9
Investigations	Haemoglobin (gm/dl)	10.9	1.8
	PCV	44.9%	2.3
	ESR (mm)	35	17
Bio chemical tests	Urea (mg/dl)	42.5	9.9
	Creatinine (mg/dl)	0.8	0.2
	Proteins (mg/dl)	5.7	0.8
	Albumin (mg/dl)	2.9	0.6
Echo findings	Ejection fraction	50.1%	8.7
Other	BMI ($kg.m^2$)	21.8	5.4
	FEV1	62%	23
	6 min walk distance (meter)	308.3	106.6

Table 6 shows vital parameters and investigations. The mean pulse rate was 91 beats per min. the mean systolic blood pressure was 126 mmHg. The mean diastolic blood pressure was 73 mmHg. These vitals were found to be in normal these COPD patients. But the hemoglobin level was less than normal at mean value of 10.98 gm/dl. The PCV was 44.9% and the ESR mean value was 35 mm which is significantly increased. The urea mean level was 42.5 mg/dl. Serum creatinine was found to be within normal limits of mean value of 0.8 mg/dl. The protein mean value was 57 mg/dl. The albumin mean value was 2.9 mg/dl. The ejection fraction on echo was found out to be 50.1% on an average. The mean BMI was within normal limits and the six min walk mean.

Table 7 shows clinical features of patients. Majority of the patients had pedal edema in 18% of the cases. This was followed by pallor in 22% of the cases. Two cases were found to have icterus. Clubbing was seen in 11% of the cases. Two cases of the COPD were found to have cyanosis. No one was found to have Lymphadenopathy.

Thus, it has been found that pedal edema was the most common clinical features in patients with COPD followed by pallor in the patients of the COPD.

Table 7: Clinical features of patients.

Clinical features	Number	%
Pallor	44	22
Icterus	2	1
Clubbing	22	11
Cyanosis	2	1
Lymphadenopathy	0	0
Pedal edema	36	18

DISCUSSION

Authors found out that the males were more affected with COPD as compared with females. The male to female ratio was found out to be 2.4:1. Pendone C et al, 7 found in their study that the mean age of the patients was 73.3 years and the male to female ratio was 3.29:1 which is in accordance to the findings of the present study.[7] Ko FW et al, found a higher male to female ratio in their study and they reported that it was 5.94:1 which is higher than the findings of the present study.[8]

"The lung health study" was carried out in people who smoked and were aged 35-60 years of age and it was found that they had obstruction in the airway which was of mild to moderate in nature. They were followed for over a period of 14 years. Only 12% of these people died during this follow up period. Out of these who died, 33% died due to cancer while 22% died due to diseases of the cardiovascular system. Only in 8% of the cases it was possible to attribute the cause of the death as respiratory disease. They did a different analysis of causes of death among patients with having severe degree of COPD. Thus, here they found that the commonest cause of death was due to diseases of the respiratory system.[9]

A study tried to assess the relation between the severe COPD and the nutritional status in Canada. They followed the people for 3-5 years. Underweight was the strongest predictor of mortality in this study. But they cautioned to conclude like this as it was not an interventional study.[10]

Marti S et al, noted that if the body mass index was less than 25 kg/m^2 along with the presence of the co-morbidities then it was a very strong predictor of the deaths in patients with COPD. They suggested that low body mass index and also the presence of co-morbidities should be considered when the physician wants to manage a case of COPD.[11]

Soriano JB et al, concluded at the end of their study that for classification of the risk clinically GOLD COPD is difficult to use as a predictor beyond three years of follow up.[12]

Boutou AK et al, showed that gas transfer proved to be a good predictor of survival. It was rated to be better than spirometry by the author. Thus, the authors supported the use of gas transfer technique.[13]

Egan TM et al, observed in their study that the osteoprotegrin levels were low in patients with COPD. They had increased levels of C reactive proteins. These levels were very high in patients who were having repeated episodes.[14]

Soler-Cataluna JJ et al, found that if a patient had repeated episodes of acute exacerbations of COPD, then the chances of such patients dying is much more than the patients with stable COPD. This rate can still increase if there is needed to repeatedly admit the patient in the hospital for the treatment of the acute exacerbations of COPD. Hence based on these findings, the author suggested that the attempts should be made to treat the patient in such a way that he will again not suffer from acute exacerbations of COPD so that outcome can be improved.[15]

CONCLUSION

Thus, the studies of clinical profile of patients with COPD has thrown a considerable light on the way the patients presented to the outpatient department, the most common presentation of the COPD, the co-morbidities present in the cases with the COPD. This picture gives an idea for further management of the cases with the COPD. Breathlessness was the most common symptom at presentation and diabetes and hypertension were the most common co-morbidities found.

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