

Original Article

Prevalence of Hypertension in Patients with Chronic Obstructive Pulmonary Disease Attending Respiratory Medicine OPD

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Abstract: Hypertension is a common complication of chronic obstructive pulmonary disease (COPD); its prevalence is currently unknown. The objectives of the study were to provide data on the prevalence of hypertension among the COPD patients. Systemic hypertension and chronic obstructive pulmonary disease (COPD) frequently coexist in the same patient, especially in the elderly. In this study of 106 patient 41(38.7%) patient found to have hypertension. Certain antihypertensive drugs can affect pulmonary function. Therefore, the management of such patients can present therapeutic challenges. The antihypertensive agents reviewed include diuretics, aldosterone receptor blockers, beta blockers, combined alpha and beta blockers, angiotensin-converting enzyme inhibitors, angiotensin II antagonists, calcium channel blockers, alpha-1 blockers, centrally acting drugs, direct vasodilators, and combinations of these drugs. Of these classes, calcium channel blockers and angiotensin II antagonists appear to be the best initial choices.

Keywords: COPD, hypertension

INTRODUCTION:

COPD has been widely recognized as a major cause of morbidity worldwide and is likely to be the third leading cause of death by the year 2020¹. There is a high prevalence of both systemic hypertension and chronic obstructive pulmonary disease (COPD) in the adult population. COPD affects about 6% of the US adult population and is associated with high morbidity and mortality². COPD has been associated with several extra-pulmonary systemic manifestations inclusive of diabetes mellitus, osteoporosis, and metabolic syndrome^{3,4}. The reported prevalence estimates have ranged from 2 to 22% in men and from 1.2 to 19% in women⁵. The recent 'Indian Study of Asthma, Respiratory Symptoms and Chronic Bronchitis' (INSEARCH) study of 85,105 men and 84,470 women from 12 urban and 11 rural sites reported the prevalence of chronic bronchitis to be 3.49% (4.29% in males and 2.7% in females) in adults > 35 years⁶.

According to GOLD guidelines (2017) Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases. The chronic airflow limitation that is characteristic of COPD is caused by a mixture of small airways disease (e.g., obstructive bronchiolitis) and parenchymal destruction (emphysema), the relative contributions of which vary from person to person. The risk of developing COPD is related to the following factors like Tobacco smoke, Indoor air pollution, Occupational exposures,

Outdoor air pollution, Genetic factors (alpha one antitrypsin deficiency), Age and gender, Socioeconomic status, Infections; etc.

Data from the Medical Outcomes Study show that the prevalence of COPD in adult outpatients with systemic hypertension is similar to that in the general population⁷. This would mean that there are about three million adults in the US with COPD who also have systemic hypertension. As a result, the management of hypertension in a patient with COPD is a common problem faced by a physician, especially when taking care of older adult patients.

Smoking tobacco is a major risk factor in the development of both systemic hypertension and COPD, and the Framingham Study has shown that smoking can increase the impact of hypertension as a risk factor in the development of cardiovascular disease^{8,9}. Epidemiological studies have suggested that ventilatory impairment measured by impaired forced expiration as seen in patients with COPD is an independent predictor of future cardiovascular events^{10,11}.

The American College of Cardiology Foundation/American Heart Association 2011 expert consensus document on hypertension in the elderly recommends that blood pressure should be lowered to less than 140/90 mmHg in adults younger than 80 years who are at high risk for cardiovascular events¹².

Apart from systemic hypertension patient with COPD can also

have other extrapulmonary manifestation like lung cancer, pulmonary embolism, obstructive sleep apnea, obesity, diabetes mellitus type-2, dyslipidaemia, ischaemic heart disease, pulmonary arterial hypertension, pneumonia, tuberculosis, musculoskeletal dysfunction, osteoporosis, gastroesophageal reflux and anaemia etc.

Material and Methodology:-

SUBJECTS: -Patients attending respiratory medicine OPD above 40 years of age.

INCLUSION CRITERIA: -

1. Patient above 40 years of age.
2. Patient having respiratory symptoms.
3. Diagnosed case of COPD.

EXCLUSION CRITERIA: -

1. Patient unable to perform spirometry.
2. Clinically unstable patient.

STUDY PROCEDURE: -

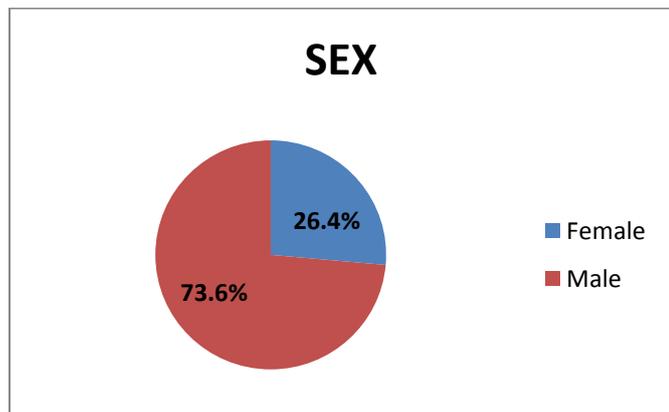
This study is carried in pulmonary medicine OPD, 106 patients was taken, out of which 78 were male and 28 were females. Informed consent was taken. Patient proper history was taken and subjected to spirometry for evaluation of lung function on the basis of above inclusion and exclusion criteria. Subjects were chosen from the outpatients and inpatients of the wards of our hospital. All patients were clinically stable. Patients were diagnosed on the basis of detailed clinical evaluation and spirometry (FEV1/FVC less than 70% and FEV1 less than 80% predicted^{13,14}).

RESULTS:-

Table-1: Distribution of COPD among males and females

	Frequency	Percent
Female	28	26.4%
Male	78	73.6%
Total	106	100.0%

Fig-1: Distribution of COPD according to sex



Analysis: In my study of 106 patients 78(73.6%) were males and 28(26.4%) were females.

Table-2: Distribution of COPD patients according to occupation.

Occupation	Frequency	Percent
DRIVER	10	9.4%
FARMER	55	51.9%
GROCERY	1	.9%
HOUSEWIFE	8	7.5%
LABOUR	8	7.5%
NOT WORKING	21	19.8%
POOJARI	2	1.9%
TAILOR	1	.9%
Total	106	100.0

Fig-2: Occupation wise distribution of patients with COPD.

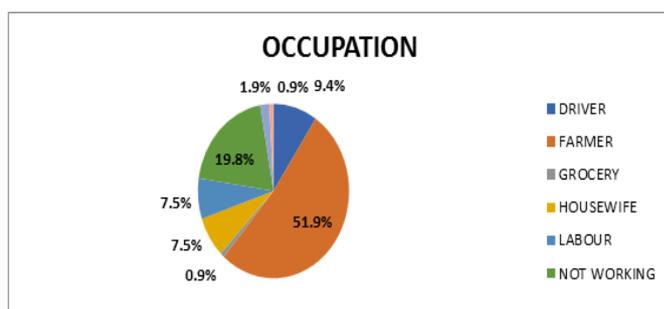
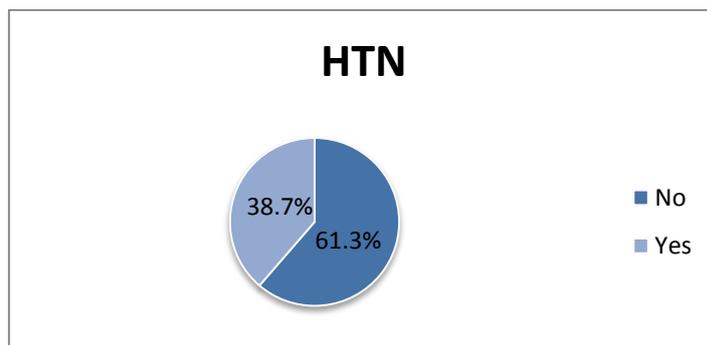


Table-3- Presence of hypertension in patients with COPD

HTN	Frequency	Percent
N	65	61.3
Y	41	38.7
Total	106	100.0

Fig-3- Figure showing percentage of hypertension in patients with COPD



Analysis: In my study of 106 patients 65(61.3%) were normal and 41(38.7%) were found having hypertension.

Discussion:

COPD has been reported to cause various extrapulmonary comorbidities and the importance of recognising COPD as a systemic disease has been emphasized. As a comorbidity of COPD, cardiovascular disease in particular has been investigated as a cause of mortality in COPD patients. Recent

studies have revealed the presence of systemic inflammation in patients with COPD. Because various chronic comorbidities related to systemic inflammation have been observed. However, this require further investigation, with the precise etiology and mechanism underlying the hypertension in patient with COPD yet to be determined.

Conclusion:

In this study 106 patients were enrolled. This was the study carried in our department to asses the prevalence of hypertension in patients with COPD. Out of 106 patients 55 (51.9%) were farmers, 21 (19.8%) were not working, 10 (9.4%) were drivers, 8 (7.5%) were housewife's, 8 (7.5%) were labours, 2 (1.9%) were poojari, 1 (0.9%) was tailor and 1 (0.9%) was use to work in grocery shop. In my study population majority of the patients with COPD were farmers. We found that out of 106 patients with COPD 28 were female and 78 were male and out of 106 patients 41 had hypertension and was on antihypertensive treatment.

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