Journal of Cardiovascular Disease Research

ISSN: 0975-3583, 0976-2833 VOL 13, ISSUE 05, 2022

Original Research Article

To Study The Prevalence Of Pulmonary Hypertension In Chronic Respiratory Diseases At A Tertiary Care Hospital In Southern Rajasthan.

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Abstract

Introduction: Pulmonary Hypertension is an increase in the pulmonary arterial, venous and capillary pressure together known as the lung vasculature, leading to shortness of breath, dizziness, fainting, chest pain, pedal oedema , ascites and other symptoms all of which are exacerbated by exertion. There is a wide variation in the prevalence of Pulmonary Hypertension due to chronic respiratory diseases.

Aim: To find the prevalence of Pulmonary Hypertension in chronic respiratory diseases.

Methodology: The study was a prospective study conducted in the Department of Pulmonary Medicine of a tertiary care hospital. 240 patients were selected randomly, of which 40 were loss to follow up due to various reasons.

Results: In our study 18% of the patients had pulmonary hypertension. Conclusion: Mild Pulmonary Hypertension was the most common grade in chronic respiratory diseases.

Keywords: Pulmonary hypertension, Chronic respiratory diseases

Introduction

Pulmonary Hypertension (PH) is defined by mean pulmonary artery pressure, mPAP ≥ 25 mm Hg at rest measured by right heart catheterization.[1] Pulmonary Hypertension is an increase in the pulmonary arterial, venous and capillary pressure together known as the lung vasculature, leading to shortness of breath, dizziness, fainting, chest pain, pedal oedema , ascites and other symptoms all of which are exacerbated by exertion. It can lead to serious condition with a markedly decreased exercise tolerance and heart failure. Pulmonary Hypertension complicates course of chronic respiratory diseases. There is an increased understanding for this intervening complication and its association with functional impairment, greater oxygen requirement, quality of life and prognosis. The severity of

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Pulmonary Hypertension in chronic respiratory diseases tends to be mild to moderate but it may be severe in some cases. Many factors are involved in the pathogenesis of Pulmonary Hypertension. It is generally considered that the severity of the respiratory disease increases the risk of Pulmonary Hypertension.[1,2]

There is a wide variation in the prevalence of Pulmonary Hypertension due to chronic respiratory diseases.[2,3] This study aims at finding the prevalence of Pulmonary Hypertension in chronic respiratory diseases.

Methodology:

The study was a prospective study conducted in the Department of Pulmonary Medicine of a tertiary care hospital in Southern Rajasthan. Before proceeding for the study, the required proforma and plan of the study were submitted to the Ethics committee for Research on Human Subjects of the institute and were approved.

Patient with underlying respiratory diseases. They were screened for presence of Pulmonary Hypertension, by symptomatology, chest X-ray PA view, ECG changes ('p' pulmonale and right axis deviation), clinical finding i.e. loud P_2, split S_2, tricuspid regurgitation, parasternal impulse, raised JVP, etc. If on these basic investigations, Pulmonary Hypertension was suspected, 2D ECHO was advised. Based on 2D echo findings, Pulmonary Hypertension was classified as mild (grade 1), moderate (grade 2) and severe (grade 3), that is corresponding to mPAP values of 25-40, 41-55, >55 mm Hg respectively.

240 patients were selected randomly, of which 40 were loss to follow up due to various reasons. Among the 200 patients studied the disease distribution was as follows : 80 COPD, 25 ILD, 30 Bronchiectasis, 50 Asthma, 5 Pneumoconiosis,5 Sarcoidosis, 5 Obstructive Sleep Apnea associated with COPD. Patients with chronic respiratory disease of either sex who met the inclusion criteria (details below) and completed the spirometry and 6 Minute Walk Test were selected.

Inclusion Criteria:

1. Chronic respiratory diseases such as Chronic Obstructive Lung Disease, Bronchiectasis, Interstitial Lung Diseases, Pneumoconiosis, Asthma etc.
2. 18 years.
3. Sex – Either Sex.

Exclusion criteria:

1. Infectious Diseases.
2. Debilitated Patient.
3. Congestive Heart Failure, Left Heart Failure, Recent Myocardial Infarction.
4. Valvular Heart Disease (Mitral Stenosis, Mitral Regurgitation).
5. Thrombo Embolic Disease.

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Results:

In this study, the population of male was 132 (66%) and female was 68 (34%). In our study majority of male and female are of COPD, but using chi square test the significance is not significant.

In our study 18% of the patients had pulmonary hypertension.

Table 1: Prevalence of Pulmonary Hypertension in chronic respiratory disease:

Pulmonary hypertension	Patients of chronic respiratory diseases(no. of patients).
Present	37
Absent	163

In the gender wise distribution of pulmonary hypertension, the population of male was 25 (68%) and female was 12 (32%).

Table 2: Gender wise distribution of Pulmonary Hypertension:

Gender	No. of patients	Percentage
Male	25	68.0
Female	12	32.0
Total	37	100.00

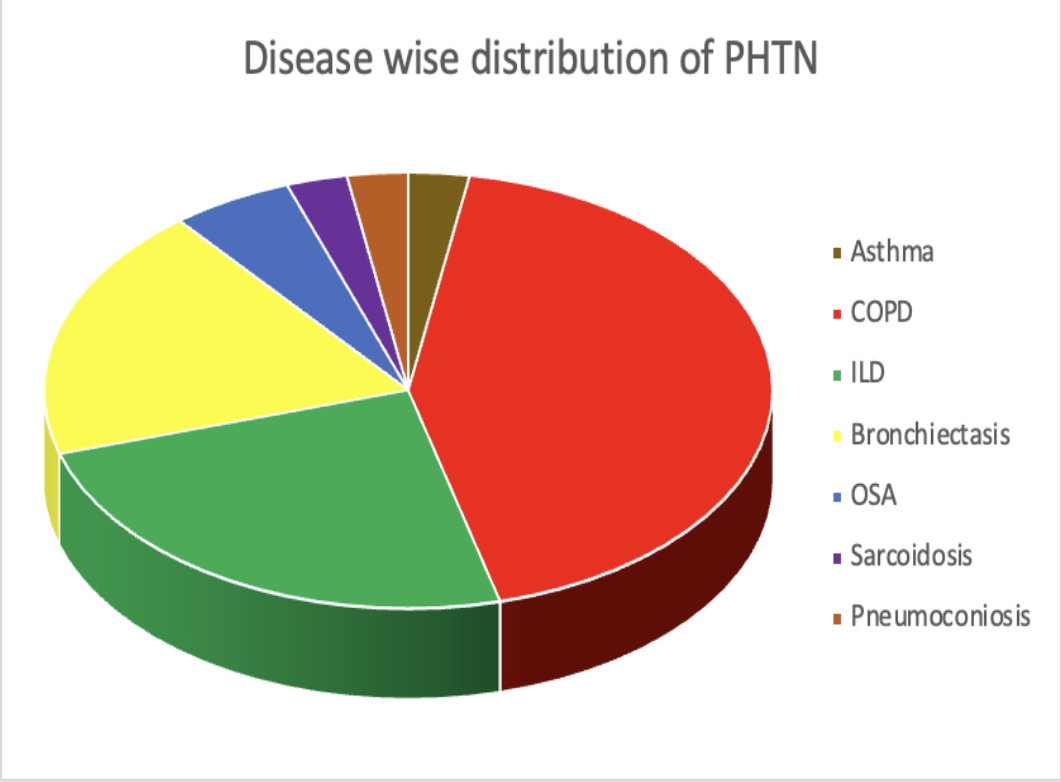

Figure 1: Disease wise distribution of Pulmonary Hypertension:

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In this study, COPD had the majority of patients while Asthma, Sarcoidosis and Pneumoconiosis had the least number of patients of Pulmonary Hypertension.

Table 3: Disease specific prevalence of Pulmonary Hypertension:

Diagnosis	No. of patients	PHTN present	Percentage
COPD	80	16	20
Asthma	50	01	02
Bronchiectasis	30	07	23
ILD	25	09	36
Sarcoidosis	05	01	20
Pneumoconiosis	05	01	20
OSA	05	02	40
Total	200	37	18

Obstructive Sleep Apnea had maximum 40% and Bronchial Asthma had minimum 2% of pulmonary hypertension cases.

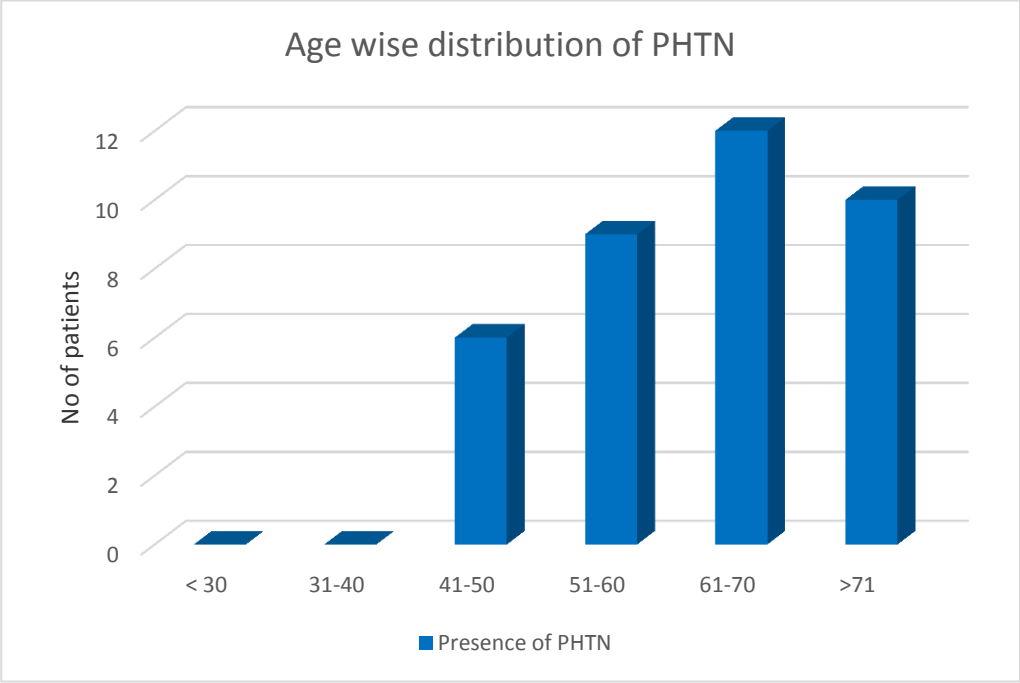

Figure 2: Age wise distribution of Pulmonary hypertension

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In the index study, majority of the patients were of the 61-70 age group. In this study majority of grade 1 pulmonary hypertension were in age group of 51-60
Years, Grade 2 in 61-70 years. Grade 3 were in equal number in 61-70 and >71
age group, but using chi square test the significance is not significant. COPD had the highest number of patients in all grades of pulmonary hypertension, but using chi square test the significance is not significant.

Discussion:

In our study 200 Patients with chronic respiratory diseases were screened for evidence of Pulmonary Hypertension (PHTN). 66% out of these were males whereas the remaining 34% were females. As per the diagnosis, 40% were COPD, 25% Asthma, 15% Bronchiectasis,12.5% ILD and 2.5% were Sarcoidosis, 2.5% Pneumoconiosis and 2.5% were Obstructive Sleep Apnea associated with COPD (OSA). Majority of the patients were in the age group of 51-60 years.

Out of 200 patients 37 i.e. 18% had Pulmonary hypertension. Pulmonary Hypertension secondary to chronic respiratory diseases had a male preponderance. It was also observed that Pulmonary Hypertension was more common in patients in the age group of 61 to 70 years. In our study, 32% of patients were found to be in this age group. In our study pulmonary hypertension was not seen in persons below 40 years of age. Our findings are comparable to study of Badesch DB, Raskob GE et al in 2010[4] where the study had a mean age of 53+/- 14 years and pulmonary hypertension was more common in older age groups.
Majority of the patients included in the study were classified as having Grade 1 Pulmonary Hypertension i.e 76%. The findings were similar to the findings of Thabut et al in 2005[2], where majority of the cases had mild pulmonary hypertension followed by moderate and severe in decreasing numbers.

The highest prevalence of pulmonary hypertension was seen in OSA associated with COPD(40%), This was comparable to the study conducted by Sajkov D, Cowie RJ et al. in 1994[5]. Lowest prevalence was in Bronchial Asthma (2%).
Grade 1 pulmonary hypertension was seen mostly in age group of 51-60 years, Grade 2 in 61-70 years, whereas Grade 3 in 61-70 and >71 age group equally. The findings were similar to the findings of Thabut et al in 2005[2], where majority of the cases had mild pulmonary hypertension followed by moderate and severe in decreasing numbers.

Conclusion:

The prevalence of Pulmonary Hypertension in males was greater than females. Pulmonary Hypertension was more common in older age groups. The severity of Pulmonary Hypertension increases with age. Mild Pulmonary Hypertension was the most common grade in chronic respiratory diseases. The highest prevalence was found in Obstructive Sleep Apnea associated with COPD and the lowest prevalence in Bronchial Asthma.

ISSN: 0975-3583, 0976-2833 VOL 13, ISSUE 05, 2022

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