



A PROSPECTIVE STUDY ON PULMONARY ARTERIAL HYPERTENSION IN COPD PATIENTS AND POST-COVID/COVID-LIKE SYNDROME PATIENTS WITH COPD.

General Medicine

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ABSTRACT

Pulmonary Arterial Hypertension is a heterogenous disease involving pathogenic remodelling of pulmonary vasculature increasing pulmonary artery pressure and vascular resistance. Chronic obstructive pulmonary disease representing one of five leading causes of death worldwide. Corona virus or Covid-19 infection caused by SARS-CoV-2 represents a serious medical condition characterized by lung parenchymal damage and altered pulmonary circulation leading to pulmonary hypertension

KEYWORDS

COPD- Chronic obstructive pulmonary disease PAH- Pulmonary arterial hypertension, COVID-19, COVID like syndrome, Gold guidelines- Global initiative for Chronic obstructive lung disease.

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) remains a significant health burden globally, often complicated by Pulmonary Arterial Hypertension (PAH). This study aimed to compare the incidence and severity of PAH in COPD patients with and without a history of COVID-19 or similar syndromes.

Aims and Objectives

To determine the incidence and severity of PAH in patients with COPD and post COVID-19 / COVID like syndrome patients with COPD and their clinical and investigative comparison of both groups.

Inclusion Criteria

1. All patients aged above 40 years
2. Patients with diagnosis of COPD based on spirometry post bronchodilator FEV1/FVC ratio less than 0.7 as GOLD guidelines
3. Post COVID-19/ COVID like syndrome with whose COPD whose diagnosis is established on previous RT-PCR positive test based on SRD ID or clinical findings of COVID.
4. Patients willing to give informed consent

Exclusion Criteria

1. All patients below 40 years of age
2. Patients with PAH due to conditions other than COPD or post COVID-19 or COVID like syndrome
3. Patients without a diagnosis of COPD
4. Patients with ongoing COVID infection
5. Patients with a diagnosis of Tuberculosis based on CBNAAT test
6. Patients not willing for informed consent

Methodology

A total of 100 patients were divided into two groups:

- **Group A:** 50 COPD patients
- **Group B:** 50 Post-COVID/COVID-like syndrome patients with COPD

The study examined various parameters, including age, sex distribution, biochemical characteristics, pulmonary function tests, PAH severity, HRCT findings, RTPCR positivity, and GOLD criteria classification.

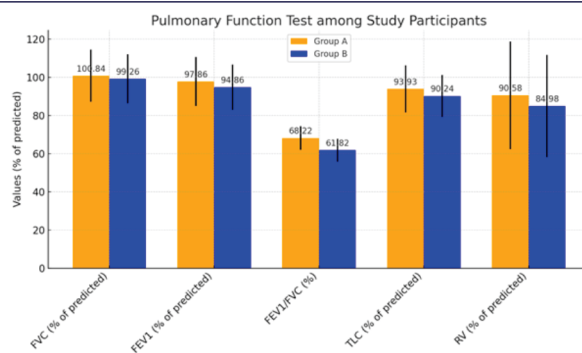
RESULTS

Age and Sex Distribution

- **Age:** The mean age was 48.47 ± 6.3 years in Group A and 47.87 ± 8.4 years in Group B ($p=0.93$).
- **Sex:** Group A had 36 males and 14 females; Group B had 32 males and 18 females ($p=0.78$).

Biochemical Characteristics The groups were comparable in baseline biochemical characteristics, with no significant differences except for D-dimer levels ($p=0.04$).

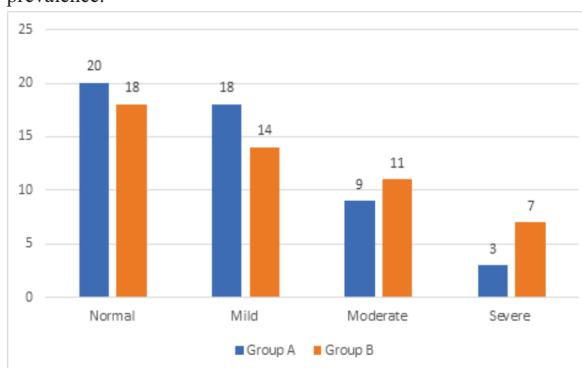
Pulmonary Function Tests Significant differences were found in FVC ($p=0.04$), FEV1 ($p=0.03$), FEV1/FVC ratio ($p=0.02$), TLC ($p=0.03$), and RV ($p=0.01$), indicating poorer pulmonary function in Group B.



Pulmonary Hypertension Distribution

- **Normal (<25 mmHg):** 20 in Group A, 18 in Group B
- **Mild (35-50 mmHg):** 18 in Group A, 14 in Group B
- **Moderate (50-70 mmHg):** 9 in Group A, 11 in Group B
- **Severe (>70 mmHg):** 3 in Group A, 7 in Group B ($p=0.04$)

The groups were similar in normal, mild, and moderate PAH but differed significantly in severe PAH, with Group B showing higher prevalence.



HRCT Findings

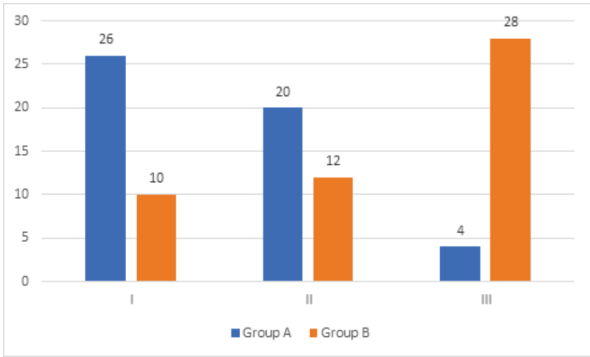
- **Normal:** 30 in Group A, 22 in Group B
- **Infiltrates:** 11 in Group A, 18 in Group B
- **Consolidation:** 9 in Group A, 10 in Group B ($p=0.03$)

RTPCR Positivity Group B had 23 positive and 27 negative cases, whereas Group A had 0 positive and 50 negative cases.

GOLD Criteria

- **Stage I:** 26 in Group A, 10 in Group B
- **Stage II:** 20 in Group A, 12 in Group B
- **Stage III:** 4 in Group A, 28 in Group B ($p=0.01$)

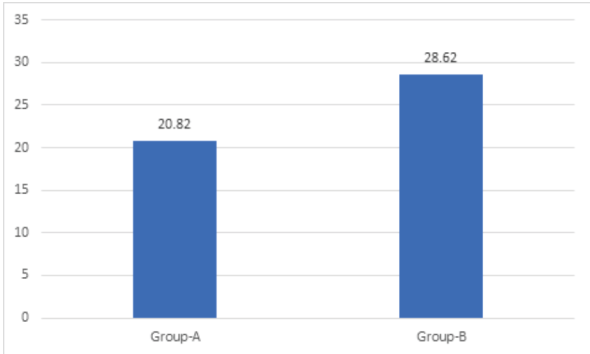
Group B had a higher incidence of advanced COPD stages.



Pulmonary Arterial Hypertension

- **Group A:** Mean 20.82 ± 3.42 mmHg
- **Group B:** Mean 28.62 ± 4.18 mmHg ($p=0.01$)

PAH was significantly more severe in Group B.



DISCUSSION

The findings indicate that post-COVID/COVID-like syndrome exacerbates PAH in COPD patients. These patients exhibited worse pulmonary function, higher D-dimer levels, more severe PAH, and advanced stages of COPD as per GOLD criteria.

CONCLUSION

The study underscores the impact of COVID-19 on the progression of PAH in COPD patients, necessitating vigilant monitoring and tailored management strategies for this vulnerable population.

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