

Trends and Outcomes of Pulmonary Hypertension in Patients with COVID-19 Infection: National Inpatient Sample Analysis

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INTRODUCTION

- ❑ PHT and RV dysfunction are significant complications in patients with COVID-19 infection.
- ❑ The development of PHT is primarily secondary to pulmonary fibrosis from extensive interstitial and alveolar inflammatory infiltrates, thickening of alveolar septa, vascular congestion, and lung edema.

OBJECTIVES

This NIS study aimed to determine the clinical and mortality outcomes of pulmonary hypertension in patients hospitalized with COVID-19 infection.

METHODS

- ❑ We identified adult patients hospitalized with hospitalized with COVID-19 infection and PHT from the 2021 NIS database.
- ❑ STATA/MP 17.0 software was used for statistical analysis. P-values were calculated using the Chi-square test and the t-test for categorical and continuous variables respectively.
- ❑ Demographic and clinical risk factors were investigated among patients with PHT with & without COVID-19 infection.
- ❑ Multivariate logistic analysis was performed

RESULTS

Demographic and clinical characteristics –2021 NIS database

Variables	PHT without COVID-19 infection (N=199,032)	PHT from COVID-19 infection (N=12,319)	P-Value
AGE (years)	71.2	68.9	<0.001
Mortality %	5.5%	22.3%	<0.001
Sex			<0.001
Male %	43.6%	45.6%	
Female %	56.4%	54.4%	
LOS (days)	6.8 days	11.2 days	<0.001
Race			<0.001
Caucasians	68.5%	63.5%	
African Americans	19.3%	20.8%	
Hispanics	7.4%	10.1%	
Asian/Pacific Islander	2.3%	2.6%	
Native American	0.5%	0.6%	
Others	2.0%	2.3%	
National Income Quartile			0.478
1-38,999	30.2%	32.8%	
39,000-47,999	25.9%	27.1%	
48,000-62,999	24%	24.2%	
>63,000	19.9%	15.9%	
Insurance			<0.001
Medicaid	74.8%	68.3%	
Medicare	10.6%	12%	
Private	12.8%	17.9%	
Uninsured	1.7%	1.7%	
Charlson Comorbid Index			<0.001
0	3.7%	8.1%	
1	11.5%	16.1%	
2	16.4%	18.7%	
>= 3	68.5%	57.1%	

Invasive Ventilation and Mortality Outcomes - Adjusted Odds ratio

	Odds Ratio (95% CI)	P - Value
Invasive Ventilation	3.55 (3.36 – 3.75)	<0.001
Mortality	5.39 (5.13 – 5.67)	<0.001

DISCUSSION

- ❑ COVID-19 infection resulted in more severe outcomes of PHT.
- ❑ The mechanisms for the development of PHT are pronounced endothelial injury from inflammatory cytokine storm, hypoxic pulmonary vasoconstriction and consequently, increased pulmonary vascular resistance resulting in RV dysfunction.
- ❑ PHT and RV dysfunction lead to increased mortality risk in COVID-19 patients.

CONCLUSION

Our analysis of the NIS database suggests that COVID-19 infection resulted in more severe outcomes of pulmonary hypertension with a longer hospital stay, higher need for invasive ventilation, and higher mortality rate

REFERENCES

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