AHA Late Breaking Science Abstract

Title

Cardiovascular manifestations and risk factors in patients hospitalized with COVID-19: A World Heart Federation Global Study.

Acronym: WHF COVID-19 Study

Expected date of study completion: December 2021

Background

To guide effective control of COVID-19 pandemic, primary data is required globally, including from low- and middle-income countries where documentation of cardiovascular manifestations and risk factors in people hospitalized with COVID-19 is limited. This study aims to describe the cardiovascular risk factors, cardiovascular manifestations and outcomes in patients hospitalized with COVID-19.

Methods

We are conducting a cohort study involving 5000 consecutive adults with COVID-19 from hospitals in low- middle- and high-income countries with a follow-up until 30 days post admission. Baseline data, including demographics and preexisting conditions, are collected with the electronic data capture platform REDCap. The outcomes collected at discharge are death, major adverse cardiovascular events, renal failure, neurological, and pulmonary outcomes. At 30-days, vital status and re-hospitalization data are collected. We will present the data of all 5000 patients if accepted for a late breaking session. We have performed descriptive analyses and report on continuous measures and proportions for categorical variables.

Results

Between 06 June 2020 – 16 August 2021, we recruited 4500 patients with COVID-19 from 37 participating hospitals across 23 countries (HIC=30.4%, UMIC=30.4%, LMIC=26.1%, LIC=13.0%). The demographic and clinical characteristics including comorbidities of the study participants are presented in **Figure 1**. Mean age of the participants was 57.1 years (±16.0), male 59.7%, pre-existing hypertension 47.3%, diabetes 31.8%, coronary artery disease 10.6%, and heart failure 4.7%. Most frequently reported cardiovascular manifestations at discharge were cardiac arrest (5.6%), acute heart failure (3.7%), and myocardial infarction (1.6%). In-hospital deaths were 13.8%. At 30-days, an additional 2.5% patients had died, and overall death rate was 16.3%. The most common cause of deaths was respiratory failure (39.1%), and sudden cardiac death (20.1%).

Conclusions

Our interim analysis shows that COVID-19 patients recruited in this cohort were predominantly middle-aged males with high prevalence of comorbidities such as hypertension and diabetes. Beyond the 14% in-hospital death rate, mortality events continued to accumulate post-discharge, resulting in a 30-day overall mortality rate of 16.3% and highlighting the importance of post-discharge care. Data from the WHF global study on COVID-19 provides us with robust data on COVID-19 outcomes and will help understand the impact and guide future health care planning for the pandemic globally.

Figure 1. Countries participating, patient characteristics, clinical outcomes at discharge and 30-day outcomes

WHF COVID-19 STUDY

Demographic Characteristics (N=4500)	N (%)
Age, mean (SD)	57.1 (16%)
Male	2767 (59.7%)
Ethnic Origin	
Caucasian	620 (13.4%)
Hispanic	481 (10.4%)
Black	729 (15.7%)
Middle Eastern	208 (4.5%)
Asian	2330 (50.2%)
Other	266 (5.7%)

Co-morbidities (Cardiovascular)	N (%)
Hypertension	2195 (47.3%)
Diabetes	1475 (31.8%)
Coronary artery disease	493 (10.6%)
Heart Failure	219 (4.7%)
Stroke	161 (3.5%)
Atrial Fibrillation	133 (2.9%)
Peripheral vascular disease	90 (1.9%)
Cardiomyopathies	51 (1.1%)

30 Day Outcomes (N=4231)	N (%)
In-hospital death	601 (13.8%)
Death post discharge (til 30-days)	105 (2.5%)
Total death	706 (16.3%)
Re-hospitalized	64 (1.5%)
Causes of death	**N (%)**
Respiratory failure	276 (39.1%)
Sudden cardiac death	141 (20.1%)
Presumed cardiovascular	31 (4.4%)
Heart failure	46 (6.5%)
Stroke	27 (3.8%)
Myocardial Infarction	6 (0.01%)
Pulmonary embolus	7 (<0.01%)
Other	164 (23.2%)