Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Spotlight on Special Topics

ECHOCARDIOGRAPHIC AND BIOMARKER PREDICTORS FOR IN-HOSPITAL MORTALITY IN COVID-19 DISEASE

Poster Contributions
Saturday, May 15, 2021, 2:45 p.m.-3:30 p.m.

Session Title: Spotlight on Special Topics: COVID 3
Abstract Category: 61. Spotlight on Special Topics: Coronavirus Disease (COVID-19)

Authors: *Joanne Michelle D. Gomez, Allison Zimmerman, Jeanne Du Fay de Lavallaz, Tai Tri Nguyen, Athina Bouroukas, Jessica Canzolino, Alan Goldberg, Tisha Suboc, Anupama Rao, Rush University Medical Center, Chicago, IL, USA*

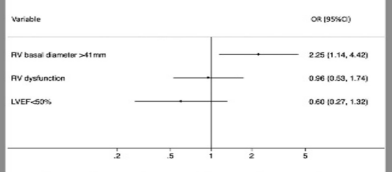
Background: The role of specific echocardiographic findings and biomarkers in predicting clinical outcomes in novel coronavirus disease 2019 (COVID-19) remains unknown. We investigated the association of various echocardiographic markers and biomarkers with in-hospital mortality.

Methods: We conducted a retrospective study of 1332 hospitalized adult patients at Rush University with COVID-19 infection between March and June 2020. We included all in-patients who received a transthoracic echocardiogram (TTE). Standard biomarkers were collected per our institutional protocol. TTE and biomarker data were analyzed for association with in-hospital mortality.

Results: Of the 255 hospitalized patients (median age 62 years, 42% females), 70 (27%) had died. Right ventricular dilation (RVD) (RV basal diameter > 41 mm) alone was significantly associated with in-hospital mortality (OR 2.25 [CI: 1.14-4.42], p=0.019). There was no association of mortality with measures of left and right ventricular systolic function (LV: p=0.2, RV: p=0.885). The only biomarker that added prognostic value when combined with RVD was C-reactive protein (AUC 0.7 [CI: 0.63-0.77], p= 0.02).

Conclusion: Patients with RVD have twice the risk for in-hospital death from COVID-19 disease. RVD is a strong adverse prognosticator, as opposed to left or right ventricular dysfunction. Derangements in typical cardiac biomarkers in the presence of RVD do not add prognostic value.

Plot 1. Association of Echocardiographic Parameters with In-Hospital Mortality



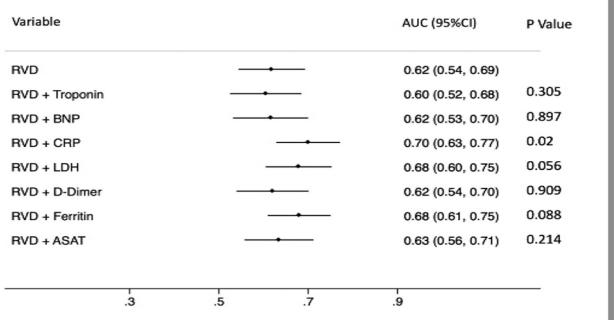
Legend: **RV** = right ventricle, **LV EF** = left ventricular ejection fraction
*RV dysfunction defined as TAPSE < 17 mm *or* S' < 9.5 cm/s

Table 1. Baseline Echocardiographic Parameters

Echocardiographic Parameter	Median
RV basal diameter	40 mm
TAPSE	20 mm
S'	13.6 cm/s
PASP	32 mmHg
Mean PAP	31 mmHg
LV EF	57.5%
LVEDD	45 mm

Legend: **RV** = right ventricle, **TAPSE** = tricuspid annular plane systolic excursion, **PASP** = pulmonary artery systolic pressure, **mean PAP** = mean pulmonary artery pressure, **LV EF** = left ventricular ejection fraction, **LVEDD** = left ventricle end-diastolic dimension

Plot 2. Association of RVD Biomarker Derangement with In-Hospital Mortality



Legend: **RVD** = right ventricular dilation, **BNP** = brain natriuretic peptide, **CRP** = C-reactive protein, **LDH** = lactate dehydrogenase, **ASAT** = aspartate aminotransferase