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RISK FACTORS OF ARTERIAL THROMBOEMBOLISM IN HOSPITALIZED COVID-19 PATIENTS: A MULTICENTER COHORT STUDY

Yi Lee

Qasim Jehangir

Chun-Hui Lin

Pin Li

Geetha Krishnamoorthy

See next page for additional authors

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Authors

Yi Lee, Qasim Jehangir, Chun-Hui Lin, Pin Li, Geetha Krishnamoorthy, Anupam Sule, Dinesh Apala, Abdul R. Halabi, Kuritkumar Patel, Dee Dee Wang, Laila M. Poisson, and Girish B. Nair



Spotlight on Special Topics

RISK FACTORS OF ARTERIAL THROMBOEMBOLISM IN HOSPITALIZED COVID-19 PATIENTS: A MULTICENTER COHORT STUDY

Moderated Poster Contributions
Special Topics Moderated Poster Theater_Hall C
Monday, April 4, 2022, 12:15 p.m.-12:25 p.m.

Session Title: The Crystal Ball: Clinical Characteristics, Bio-markers and Imaging to Predict Outcomes in COVID-19
Abstract Category: 61. Spotlight on Special Topics: Coronavirus Disease (COVID-19)
Presentation Number: 1120-03

Authors: Yi Lee, *Qasim Jehangir*, Chun-Hui Lin, Pin Li, Geetha Krishnamoorthy, Anupam Sule, Dinesh Apala, Abdul R. Halabi, Kiritkumar Patel, Dee Dee Wang, Laila Poisson, Girish B. Nair, St. Joseph Mercy Oakland Hospital, Pontiac, MI, USA, Henry Ford Hospital, Detroit, MI, USA

Background: Endothelial cell dysfunction from infection by SARS-CoV-2 and inflammatory cytokines leading to hyperinflammatory and hypercoagulable state is thought to be the mechanism of arterial thromboembolism (ATE) in COVID-19 patients. COVID-19 infection is known to be an independent risk factor for acute stroke and myocardial infarction (MI). However, data on the risk factors of ATE in hospitalized COVID-19 patients is limited.

Methods: This retrospective, multicenter cohort study included adult patients admitted to one quaternary care and three community hospitals with PCR-proven SARS-CoV-2 infection between 3/1/2020 and 12/31/2020. The composite outcome was in-hospital ATE events, including acute ischemic stroke, MI, and other ATE identified by ICD-10 codes. Student t-test was conducted for continuous variables and the Chi-square test for categorical variables. Multivariate logistic regression using forward selection was conducted. All statistical tests were 2-sided with an α level of 0.05. All data was analyzed using R version 4.0.4.

Results: The cohort included 3531 patients with 371 (10.5%) patients who developed acute ATE. There were 398 ATE events: 270 patients had MI, 43 had stroke, 85 had other ATE, 12 had MI + stroke, 13 had MI + other ATE, and 2 had stroke + other ATE. The model suggested that initial systolic blood pressure (BP) <90 mmHg and >160 mmHg; elevated initial biomarkers including B-type natriuretic peptide (>100 pg/mL), troponin-I (>0.03 ng/mL), lactate dehydrogenase (>192 U/L), creatine phosphokinase (male >280 U/L and female >155 U/L), C-reactive protein (>0.5 mg/dL), leukocytes (>11 K/uL), lactate (>2.2 mmol/L), and aspartate aminotransferase (>41 U/L); presenting hypoalbuminemia (<3.5 g/dL) and hypomagnesemia (<1.8 mg/dL); age >60 ; male sex; and history of cerebrovascular accident (CVA), coronary artery disease (CAD), hyperthyroidism, and cigarette smoking were associated with an increased risk of ATE (all $p<0.05$).

Conclusion: Hypo or hypertension on admission, elevated inflammatory and cardiac markers, hypoalbuminemia, hypomagnesemia, smoking, and comorbidities including CAD and CVA are associated with ATE in hospitalized COVID-19 patients.