

Discriminatory accuracy of the SOFA score for determining clinical decompensation in patients presenting with COVID-19

N. Krepostman, M. Collins, K. Merchant, S. De Sirkar, L. Chan, S. Allen, J. Newman, D. Patel, J. Fareed, S. Berg, A. Darki

Loyola University Medical Center, Maywood, United States of America

Funding Acknowledgement: Type of funding sources: Public hospital(s). Main funding source(s): Loyola University Medical Center

Introduction: While the global dissemination of vaccines targeting the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) has resulted in a decline in the incidence of infections, the case fatality rates have remained relative stable. A major objective of managing hospitalized patients with documented or suspected COVID-19 infection is the rapid identification of features associated with severe illness using readily available laboratory tests and clinical tools. The sequential organ failure assessment (SOFA) score is a validated tool to facilitate the identification of patients at risk of dying from sepsis.

Purpose: The aim of this study was to assess the discriminatory accuracy of the SOFA score in predicting clinical decompensation in patients hospitalized with COVID-19 infection.

Methods: We conducted a retrospective analysis at a three-hospital health system, comprised of one tertiary and two community hospitals, located in the Chicago metropolitan area. All patients had positive SARS-CoV-2 testing and were hospitalized for COVID-19 infection. The primary outcome

was clinical decompensation, defined as the composite endpoint of death, ICU admission, or need for intubation. We utilized the most abnormal laboratory values observed during the admission to calculate the SOFA score. Receiver Operating Curves (ROC) were then constructed to determine the sensitivity and specificity of SOFA scores.

Results: Between March 1st and May 31st 2020, 1029 patients were included in our analysis with 367 patients meeting the study endpoint. The median SOFA score was 2.0 IQR (Q1, Q3 1,4) for the entire cohort. Patients who had in-hospital mortality had a median SOFA score of 4.0 (Q1,Q3 3,7). In patients that met the primary composite endpoint, the median SOFA score was 3.0, IQR (Q1, Q3 2,6). The ROC was 0.776 (95% CI 0.746–0.806, $p < 0.01$).

Conclusion: The SOFA score demonstrates strong discriminatory accuracy for prediction of clinical decompensation in patients presenting with COVID-19 at our urban hospital system.

