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Correlates of Disease Outcomes in Patients with COVID-19, Admitted to Intensive Care Units of University Hospital, Kotelawala Defence University

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Abstract

COVID-19 became a pandemic affecting millions of people globally. Most patients were critically ill when admitted, requiring intensive care. Cytokine-mediated hyperinflammatory response leads to critical illness where patient outcomes were influenced by the extent of hyperinflammation, demographics, comorbidities, and sepsis. Early recognition of risk factors and identification of predictive markers is beneficial to alter the course of disease progression. Studying demographic and clinical characteristics, sepsis & inflammatory markers of COVID-19 patients was aimed to identify associates of poor patient outcomes. A retrospective cohort study was conducted among 219 COVID confirmed patients, admitted to Intensive Care Units (ICUs) of University Hospital of Kotelawala Defence University from June to December 2021. Demographics, comorbidities, sepsis markers (procalcitonin, leukocyte count, absolute neutrophil count, absolute lymphocyte count and neutrophil-lymphocyte ratio , inflammatory markers (C-Reactive Protein (CRP), Lactate Dehydrogenase (LDH) and serum ferritin) and patient outcomes (deceased or discharged) were collected. Data were analysed using descriptive statistics, Chi-square test and Mann-Whitney U test. Bi-variate logistic regression was done to determine predictors of poor patient outcomes. Outcomes were significantly poor among elderly (> 60 years), with ≥ 2 co-morbidities, existing diabetes mellitus, hypertension, renal impairment, and with > 1 week of ICU stay. Peak levels of all sepsis markers showed a statistically significant association with poor patient outcomes. Peak levels of CRP and LDH were significantly higher in the 'deceased group', while serum ferritin was not. In conclusion, age, comorbidities, ICU stay, sepsis and inflammatory markers (CRP & LDH) showed a statistically significant association with poor outcomes. CRP was the best predictor of poor outcomes in critically ill COVID-19 patients.

Keywords: *COVID-19, Markers, Patient outcomes*