

INFLAMMATORY, HEMATOLOGICAL AND BIOCHEMICAL BIOMARKERS IN COVID-19 PATIENTS

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Abstract

There are few accurate prognostic indications of the illness's development and severity for COVID-19, despite certain biomarkers having been investigated. The unexpected nature of COVID-19's course, which can quickly progress from asymptomatic to severe disease, lies at the heart of the disease's intricacy. Predicting SARS-CoV-2 pathogenicity through laboratory biomarkers and as such, identifying the patients' illness severity at the time of initial admission would be crucial in aiding patient care. In this study, we sought to evaluate hematological, biochemical and inflammatory biomarkers in COVID-19 patients. This was a cross-sectional research with 48 COVID-19 patients (16 asymptomatic/mild, 16 moderate, and 16 severe) and 48 age-sex matched COVID-19-negative clients from Moi Teaching and Referral Hospital in Kenya. On admission, demographic information, symptoms, and laboratory test results were collected. Significantly, COVID-19 severity was associated with hemoglobin ($p < 0.0001$), white blood cells ($p = 0.0022$), hematocrit ($p < 0.0001$), blood urea nitrogen ($p = 0.01$), blood sodium ($p = 0.0002$), potassium ($p = 0.0483$), C-reactive protein ($p = 0.0002$), and Lactate Dehydrogenase ($p < 0.0001$). CRP showed a high positive connection (0.5433; $p = 0.0006$) with COVID-19 severity, but LDH showed a mild positive correlation (0.2484; $p < 0.0001$). When comparing asymptomatic/mild COVID-19 to severe COVID-19, discriminative accuracy for CRP and LDH was greatest (AUC:0.8867, 95% CI:0.7532-1.000) and (AUC:1.000, 95% CI:1.000-1.000), respectively. Inflammatory biomarkers, hematological and biochemical indices have the potential to complement SARS-CoV-2 testing and predict the course of COVID-19. This will be useful in designing appropriate care for COVID-19 patients through targeted therapy.

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