

High Mean Platelet Volume and MPV/Platelet Ratio Predict Mortality for COVID-19 Patients in Intensive Care Unit

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Abstract

Background: Mean platelet volume to platelet count (MPV/Plt) ratio (MPR) is a new predictor of mortality in critical patients with COVID-19 infection in intensive care unit (ICU). **Objective:** To retrospectively examine the laboratory predictors of mortality among COVID-19 patients. **Materials and Methods:** A total of 106 patients with COVID-19 in ICU were enrolled in the study. The medical records of the patients and the electronic patient monitoring system were retrospectively analyzed. **Results:** The Interleukin-6, C-reactive protein (CRP), procalcitonin, leukocyte count, neutrophil count, neutrophil %, neutrophil count/lymphocyte count (NLR) and neutrophil count/albumin (NAR) ratio was significantly higher among nonsurvivors ($p=0.0001$, $p=0.004$, $p=0.003$, $p=0.049$, $p=0.007$, $p=0.009$, $p=0.007$ and $p=0.0001$; respectively). While the survivors had lower platelet distribution width, red blood cell distribution width, MPV and MPR ($p=0.016$, $p=0.03$, $p=0.005$ and $p=0.049$; respectively), hemoglobin, Plt, mean corpuscular hemoglobin concentration, lymphocyte % ve monocyte % were higher ($p=0.022$, $p=0.033$, $p=0.042$, $p=0.008$ and $p=0.04$; respectively). In the logistic regression analysis, five features, including high levels of CRP, procalcitonin, pro-BNP, MPR, and low level of plt were shown as mortality predictors for COVID-19 patients in ICU ($p=0.045$, $p=0.025$, $p=0.017$, $p=0.027$ and $p=0.041$; respectively). **Conclusion:** Mean platelet volume to platelet count ratio, NLR, NAR predict mortality in critical cases of COVID-19 which will contribute to early prediction, accurate diagnosis, and treatment to improve the prognosis of patients. **Keywords:** COVID-19, mortality, MPV, MPV/platelet ratio, NLR, platelet

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