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The Prognostic Significance of Red Cell Distribution Width – Coefficient of Variation (RDW-CV) in Evaluating COVID-19 Severity Among Fully Vaccinated Patients Aged 18 Years Old and Above in a Tertiary Hospital in Lipa City, Batangas

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ABSTRACT

Red Cell Distribution Width-Coefficient of Variation (RDW-CV) may serve as a prognostic tool for assessing COVID-19 severity. However, its validity, utilization, and optimal cutoff value as a potential severity indicator for fully vaccinated COVID-19 patients demand further investigation. Thus, this study aims to establish the RDW-CV cutoff value as a COVID-19 severity indicator, determine its sensitivity and specificity, and assess the RDW-CV values in categorizing fully vaccinated and unvaccinated severe and non-severe Filipino COVID-19 patients aged 18 years old and above. A retrospective research approach was conducted to evaluate the complete blood count of 64 hospitalized RT-PCR(+) COVID-19 patients. The total sample population was divided into 4 subgroups having 16 participants each and was categorized according to their COVID-19 disease severity and vaccination status. After the adjustment for the effect of age, the RDW-CV [AUC = 0.95 (95% CI: 0.87-1.00)] identified the severity of fully vaccinated COVID-19 patients with an optimal cutoff value of ≤ 13.71%, having 93.8% sensitivity and 81.2% specificity. On the other hand, the RDW-CV [AUC = 0.99 (95% CI: 0.97-1.00)] determined the severity of unvaccinated COVID-19 patients with an optimal cutoff value of ≥ 13.37%, having 100% sensitivity and 93.7% specificity. Results revealed that increased RDW-CV is predictive of severe COVID-19 in unvaccinated patients while decreased RDW-CV is predictive of severe COVID-19 in fully vaccinated patients; however, findings necessitate further evidence. Additionally, establishing RDW-SD values for fully vaccinated COVID-19 patients is recommended for a robust standalone prognostic indicator.

KEYWORDS: COVID-19 severity, Prognostic indicator, RDW-CV, SARS-CoV-2