

Clinical significance of changes in red cell distribution width during hospitalization for COVID-19

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November 15, 2020

Abstract

Background: The possible differences in characteristics and prognosis, among patients with coronavirus disease 2019 (COVID-19), with vs. without changes in red cell distribution width (RDW) during hospitalization, have not been investigated. Methods: For 477 adults hospitalized with COVID-19, demographic, laboratory and clinical characteristics, in-hospital outcomes and all-cause mortality were compared according: to high (>14.7%, n=146) vs. normal ([?]14.7%, n=331) RDW values at admission, and according to RDW changes (n=150) vs. stable RDW (n=262) during hospitalization. Results: Both high RDW at admission and change in RDW during hospitalization were significantly associated with older age, more severe clinical and laboratory characteristics, and poor in-hospital outcomes. On median follow-up lasting 83 days, the mortality rates were higher among patients with high vs. normal RDW on admission (26.7% vs. 10.0%, $P < .001$) and RDW changes vs. stable RDW (34.7% vs. 5.7%, $P < .001$). On multivariate analysis, change in RDW was strongly associated with decreased survival (relative risk 1.50 and 95% confidence interval 1.29–1.75), while high RDW on admission was not found to be most significantly associated with mortality. Conclusions: Among patients with COVID-19, RDW changes during hospitalization were associated with a severe clinical profile, poor in-hospital outcomes and increased short-term mortality. Repeated assessment of RDW may provide useful information for improving the care of hospitalized patients with COVID-19.

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