

Red cell distribution width: a novel predictor of mortality in critically ill patients

Libing Jiang¹, Xia Feng², Yuefeng Ma¹, Mao Zhang¹

¹Department of Emergency Medicine, Second Affiliated Hospital, School of Medicine & Institute of Emergency Medicine, Zhejiang University, Hangzhou 310009, China; ²Department of Respiration, The Affiliated Hospital of Zunyi Medical College, Guizhou 563000, China

Correspondence to: Mao Zhang, PhD, MD. Chief Physician, Emergency Medicine Research Institute of Zhejiang University; Emergency Medicine Center, Second Hospital Affiliated to Medical College, Zhejiang University, 88# Jie Fang Road, Shang Cheng District, Hangzhou 310009, China. Email: zmlhz@hotmail.com.

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To the editor,

We have read with great interest the recently published article titled “Red cell distribution width is associated with hospital mortality in unselected critically ill patients” by Zhang *et al.* (1). In that very well-presented article, the authors aimed to investigate the role of red cell distribution width (RDW) in prediction hospital mortality in critically ill patients. They concluded that RDW measured on ICU entry is an independent predictor of in-hospital mortality in critically ill patients and higher RDW was associated with longer length of ICU stay, and the change of RDW in a short interval provided no additional prognostic value in critically patients. We would like to thank Zhang *et al.* (1) for their comprehensive contribution.

RDW is a quantitative measure of anisocytosis, the variability in size of circulation erythrocyte and is routinely reported as a component of the complete cell count analysis. In the past, RDW is usually used for the differential diagnosis of anemia (especially iron-deficiency anemia) (2). In recent years, RDW has been demonstrated to significantly associated with mortality and other adverse outcomes in various clinical conditions, including chronic and acute diseases such as chronic and acute heart failure, acute dyspnea, acute pancreatitis, severe sepsis and septic shock, trauma, acute pulmonary embolism, and even community-dwelling older adults (3-8). In addition, the change of RDW is affected by many factors such as anemia, renal dysfunction or hepatic dysfunction, thyroid disease, transfusion, acute or chronic inflammation, neurohumoral activation, malnutrition (i.e., iron, vitamin B12 and folic acid), ethnicity, bone marrow

depression, and use of some medications (i.e., erythropoietin use and antibiotic use) (2,5). However, in the present study, the authors did not describe these conditions in detail and also did not exclude relevant diseases in their exclusion criteria. Therefore, it would be better if the authors described the above mentioned RDW affecting factors in more detail. In addition, it is better to determine the time elapsed between blood sampling and RDW measuring, because the length of this interval may significantly alter RDW levels (2). In addition, RDW discussed in this study was measured on entry to ICU; however, we believe that RDW may be significantly different between patient admitted to the ICU from emergency department directly and patient admitted to the ICU who is transferred from other hospitals or departments.

In conclusion the study by Zhang *et al.* (1) will lead to further studies regarding the association between RDW and mortality or other adverse outcomes. However, one should keep in mind that RDW should be evaluated together with other prognostic or inflammatory markers. Only in this way, can we obtain exact information from these predictors.

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