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LETTER TO THE EDITOR

Red blood cell distribution width: An emerging predictor for mortality in critically ill patients?

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To the Editor,

We read the recently published article 'Red cell distribution width as predictor for mortality in critically ill patients' by Meynaar *et al.*[1] In the mentioned article, the authors aimed to evaluate whether red cell distribution width (RDW) is a significant risk factor for hospital mortality in critically ill patients and to investigate whether RDW is a parameter indicating inflammation. They concluded that RDW level was an independent predictor of mortality in critically ill patients on ICU admission. The low cost and easy attainability of this parameter may strengthen its usefulness in daily practice in the near future. We would like to thank the authors for their contribution.

RDW, which is used in the differential diagnosis of anaemia, is an automated measure of the variability of red blood cell size.[2] Previously it was shown that RDW is an independent variable of prognosis in patients with cardiovascular diseases such as heart failure, myocardial infarction, stroke, and pulmonary hypertension.[2-6] In addition, it was also found to be related to mortality and other severe adverse outcomes in renal and infectious diseases.[7] Ageing, malnutrition, iron or vitamin B12 deficiency, bone marrow depression, chronic inflammation and any medication may affect RDW levels.[1,2] Thus, it would have been useful if the authors had mentioned these RDW-affecting factors. Moreover, it would have been contributory to know the time elapsed between taking the blood samples and measuring RDW since the RDW value may be affected by a delay.[8] On the other hand, it would have been better if the phrase 'critically ill patients' had been described in a more detailed explanation in terms of potential life-threatening health problems.

In a recent study, atrial natriuretic peptide (ANP) was demonstrated to be a valuable predictor in early diagnosis of sepsis in ICU patients.[9] Recent studies have shown that the neutrophil-to-lymphocyte ratio and mean platelet volume (MPV) are also associated with inflammatory diseases and mortality in critically ill patients.[1,10-11] In this view, it would also have been relevant if the authors had included these parameters in the study.

We are of the opinion that the findings of Meynaar *et al.* will lead to further studies and research concerning the relationship between RDW and mortality in critically ill patients. So, RDW should be considered with other inflammatory markers (e.g. procalcitonin, atrial natriuretic peptide and brain natriuretic peptide) to provide certain information about the inflammatory status of the patient.

REFERENCES

1. Meynaar IA, Knook AH, Coolen S, et al. Red cell distribution width as predictor for mortality in critically ill patients. Neth J Med. 2013;71:488-93.
2. Lou Y, Wang M, Mao W. Clinical Usefulness of Measuring Red Blood Cell Distribution Width in Patients with Hepatitis B. PLoS One. 2012;7:e37644.
3. Allen LA, Felker GM, Mehra MR, et al. Validation and potential mechanisms of red cell distribution width as a prognostic marker in heart failure. J Card Fail. 2010;16:230-8.
4. Dabbah S, Hammerman H, Markiewicz W, Aronson D. Relation between red cell distribution width and clinical outcomes after acute myocardial infarction. Am J Cardiol. 2010;105:312-7.
5. Ani C, Ovbiagele B. Elevated red blood cell distribution width predicts mortality in persons with known stroke. J Neurol Sci. 2009;277:103-8.
6. Hampole CV, Mehrotra AK, Thenappan T, et al. Usefulness of red cell distribution width as a prognostic marker in pulmonary hypertension. Am J Cardiol. 2009;104:868-72
7. Chen B, Ye B, Zhang J, et al. RDW to Platelet Ratio: A Novel Noninvasive Index for Predicting Hepatic Fibrosis and Cirrhosis in Chronic Hepatitis B. PLoS One. 2013 17;8:e68780.
8. Balta S, Demirkol S, Unlu M, Celik T. Red cell distribution width is a predictor of mortality in patients with major bleeding. Rev Port Cardiol. 2013;32:843-4.
9. Liu Y, Li Q, Li JJ, Geng B. The clinical value of atrial natriuretic peptide in early diagnosis of sepsis. Zhonghua Wei Zhong Bing Ji Jiu Yi Xue. 2013;25:669-72.
10. Ekiz O, Balta I, Sen BB, et al. Mean Platelet Volume In Recurrent Aphthous Stomatitis And Behçet Disease. Angiology. 2013 Jun 13 [Epub ahead of print]
11. Biyik M, Ucar R, Solak Y, et al. Blood neutrophil-to-lymphocyte ratio independently predicts survival in patients with liver cirrhosis Eur J Gastroenterol Hepatol. 2013;25:435-41.