The association between red cell distribution width and non-small-cell lung cancer

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We have read the article ‘Preoperative red cell distribution width in patients undergoing pulmonary resections for non-small-cell lung cancer’ by Warwick et al. [1]. They aimed to investigate the association of red cell distribution width (RDW) in patients undergoing lung resections for non-small-cell lung cancer with respect to in-hospital morbidity, mortality and long-term survival. They concluded that RDW is a significant factor after risk adjustment, determining in-hospital morbidity, mortality and long-term survival in patients undergoing post-potentially curative resections for non-small-cell lung cancer.

RDW is a measure of the variability in the size of circulating erythrocytes and is expressed as the coefficient of variation of the erythrocyte volume. As several routine haematology instruments can analyse erythrocyte volume, RDW is available in most clinical settings. RDW independently predicts long-term mortality in many clinical conditions [2]. It is reported routinely as part of the full blood count, and it may be elevated by inflammation, uraemia and transfusion history. Recently, a number of studies have demonstrated that elevated RDW levels are associated with poor prognosis in the setting of coronary artery disease, coronary bypass surgery, heart failure, stroke, peripheral arterial disease and older age [3].

Nowadays, although anaemia is a predictor of postoperative complications and is a risk factor for mortality in post-cardiac surgery patients, RDW is described as an independent early marker of haemoglobin evolution and an independently identified risk factor for new-onset anaemia, providing predictive information for haematological abnormalities beyond haemoglobin concentrations and other known risk factors. It is commonly used as a method for the differential diagnosis of anaemia and could be elevated in any conditions, where reticulocytes are released into circulation [4].

However, the value of RDW is instrument dependent, forcing each laboratory to establish its own reference values. A common underlying cause of high RDW is iron or B12/folate deficiency, where normal erythrocytes are mixed with smaller or larger ones produced during the deficiency. The correlation with bilirubin could also be due to liver damage and excessive alcohol intake, resulting in macrocytosis and increased RDW. Additionally, not only RDW but also mean platelet volume, neutrophil lymphocyte ratio [5], C-reactive protein, gamma-glutamyl transferase and uric acid are easy methods to evaluate the prognosis of the patients. These markers might be helpful in clinical practice. Finally, because Warwick et al. [1] evaluated patients undergoing pulmonary resections for non-small-cell lung cancer retrospectively in their study, the authors might not accurately define how much time elapsed before measuring RDW levels; delaying blood sampling can cause abnormal results in RDW measurements [6].

In conclusion, RDW are affected by many conditions. So one should keep in mind that RDW itself without other inflammatory indicators may not give exact information to clinicians about the inflammatory status and prognostic indication of the patients. Finally, from that point of view, we think that it should be evaluated taking into consideration other serum inflammatory markers.

Conflict of interest: none declared.

REFERENCES