

Hemogram parameters for predicting pulmonary embolism in patients with deep venous thrombosis

Hakki Kaya

Recep Kurt

Department of Cardiology,
Cumhuriyet University Medical
School, Sivas, Turkey

Dear editor

We read the article of Sevuk et al,¹ published in the August 2015 issue of your journal, with great interest. The authors concluded that percentage change in serial measurements of mean platelet volume (MPV) and platelet-distribution width (PDW) is valuable in predicting the development of pulmonary thromboembolism in patients with a previous history of deep venous thrombosis (DVT). In a similar study conducted by Braekkan et al² (Tromsø Study), MPV on admission was shown to predict pulmonary thromboembolism.

In a study by Zorlu et al,³ red cell-distribution width (RDW) values >14%, which is another parameter included in complete blood count, were associated with increased risk of mortality in the early period after pulmonary thromboembolism. RDW can be easily measured in routine hemograms, and indicates changes in erythrocyte-distribution width.⁴ Certain inflammatory cytokines released in response to acute heart failure occurring in acute pulmonary embolism may cause an increase in RDW values through inhibition of erythrocyte maturation by affecting bone marrow.⁵⁻⁷ It is realized that the study by Sevuk et al¹ did not include RDW in statistical analysis. Considering the fact that RDW has been previously documented to increase mortality in pulmonary thromboembolism,³ we suggest that RDW may be increased in patients with DVT due to acute pulmonary embolism and associated acute right heart failure and thus play a role in predicting the development of pulmonary embolism.

In conclusion, RDW, which is measured in routine hemograms together with MPV and PDW, is an easy parameter to access, so authors might include RDW in statistical analysis. We think that if RDW levels were used for this study together with MPV and PDW, RDW might change the results of multivariate analysis and might be one of the predictors of pulmonary embolism in patients with DVT.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Sevuk U, Bahadır MV, Altındag R, et al. Value of serial platelet indices measurements for the prediction of pulmonary embolism in patients with deep venous thrombosis. *Ther Clin Risk Manag*. 2015;11:1243–1249.
2. Braekkan SK, Mathiesen EB, Njølstad I, Wilsaard T, Størmø J, Hansen JB. Mean platelet volume is a risk factor for venous thromboembolism: the Tromsø Study, Tromsø, Norway. *J Thromb Haemost*. 2010;8:157–162.

Correspondence: Hakki Kaya
Department of Cardiology, Cumhuriyet
University Medical School, Yenişehir
Mahallesi, Kayseri Caddesi,
58140 Sivas, Turkey
Tel +90 346 258 1807
Fax +90 346 219 1268
Email drhakikaya84@gmail.com

3. Zorlu A, Bektasoglu G, Guven FM, et al. Usefulness of admission red cell distribution width as a predictor of early mortality in patients with acute pulmonary embolism. *Am J Cardiol*. 2012;109:128–134.
4. Karnad A, Poskitt TR. The automated complete blood cell count. Use of the red blood cell volume distribution width and mean platelet volume in evaluating anemia and thrombocytopenia. *Arch Intern Med*. 1985;145:1270–1272.
5. Felker GM, Allen LA, Pocock SJ, et al. Red cell distribution width as a novel prognostic marker in heart failure: data from the CHARM Program and the Duke Databank. *J Am Coll Cardiol*. 2007;50:40–47.
6. Hampole CV, Mehrotra AK, Thenappan T, Gomberg-Maitland M, Shah SJ. Usefulness of red cell distribution width as a prognostic marker in pulmonary hypertension. *Am J Cardiol*. 2009;104:868–872.
7. Pierce CN, Larson DF. Inflammatory cytokine inhibition of erythropoiesis in patients implanted with a mechanical circulatory assist device. *Perfusion*. 2005;20:83–90.

Authors' reply

Utkan Sevak¹

Mehmet Veysi Bahadır²

Rojhat Altındag³

Erkan Baysal³

Baris Yaylak³

Nurettin Ay⁴

Firat Ayaz¹

Ertan Demirtas⁵

¹Department of Cardiovascular Surgery, Diyarbakır Gazi Yaşargil Education and Research Hospital, ²Department of General Surgery, Dicle University, ³Department of Cardiology, ⁴Department of General Surgery, Diyarbakır Gazi Yaşargil Education and Research Hospital, Diyarbakır, ⁵Department of Cardiovascular Surgery, Liv Hospital, Ankara, Turkey

Correspondence: Utkan Sevak
Diyarbakır Gazi Yaşargil Eğitim ve Araştırma
Hastanesi, Kalp ve Damar Cerrahisi Kliniği,
3 kat, Uckuyular, Diyarbakır 21010, Turkey
Tel +90 505 530 7095
Email utkansevak@gmail.com

Dear editor

We read with great interest the letter to the editor written regarding our article, and appreciate the opportunity to respond to the letter.¹

Red blood cell-distribution width (RDW) is an easily available and affordable laboratory test that measures variation in red blood-cell size or red blood-cell volume. Recent studies have shown that elevated RDW was associated with

the mortality rate of many disease states. Zorlu et al found that high RDW was associated with worse hemodynamic parameters and increased risk of mortality in patients with acute pulmonary embolism (PE).² In a study by Cay et al, RDW was reported to be associated with the presence and severity of deep venous thrombosis (DVT).³ Additionally, a recent report by Bucciarelli et al associated elevated levels of RDW with risk of venous thromboembolism.⁴

We agree that RDW may be associated with PE in patients with DVT, and may play a role in predicting the development of PE in patients with DVT. In future research, we plan to include RDW in our experimental design.

Disclosure

The authors report no conflicts of interest in this communication.

References

1. Sevak U, Bahadır MV, Altındag R, et al. Value of serial platelet indices measurements for the prediction of pulmonary embolism in patients with deep venous thrombosis. *Ther Clin Risk Manag*. 2015;11:1243–1249.
2. Zorlu A, Bektasoglu G, Guven FM, et al. Usefulness of admission red cell distribution width as a predictor of early mortality in patients with acute pulmonary embolism. *Am J Cardiol*. 2012;109:128–134.
3. Cay N, Unal O, Kartal MG, Ozdemir M, Tola M. Increased level of red blood cell distribution width is associated with deep venous thrombosis. *Blood Coagul Fibrinolysis*. 2013;24:727–731.
4. Bucciarelli P, Maino A, Felicetta I, et al. Association between red cell distribution width and risk of venous thromboembolism. *Thromb Res*. 2015;136:590–594.

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Therapeutics and Clinical Risk Management 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Therapeutics and Clinical Risk Management editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Therapeutics and Clinical Risk Management

Publish your work in this journal

Therapeutics and Clinical Risk Management is an international, peer-reviewed journal of clinical therapeutics and risk management, focusing on concise rapid reporting of clinical studies in all therapeutic areas, outcomes, safety, and programs for the effective, safe, and sustained use of medicines. This journal is indexed on PubMed Central, CAS,

Submit your manuscript here: <http://www.dovepress.com/therapeutics-and-clinical-risk-management-journal>

Dovepress

EMBASE, Scopus and the Elsevier Bibliographic databases. The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.