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**Columns: LETTER TO THE EDITOR**

**Red cell distribution width and nonalcoholic steatohepatitis**

Kurt YG *et al*. RDW as an indicating marker

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**Abstract**

Red cell distribution width is a measure of deviation of the volume of red blood cells. It is a marker of anisocytosis and often used to evaluate the possible causes of the anemia. Elevated red cell distribution width levels are also associated with acute and chronic inflammatory responses. In nonalcoholic steatohepatitis, inflammation is accompanied with steatosis. For assuming red cell distribution width as a marker of nonalcoholic steatohepatitis, intervening factors such as levels of inflammatory markers should also be evaluated.

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**Key words:** Red cell distribution width; Steatohepatitis; Inflammatory markers; Steatosis; Fibrosis

**Core tip:** Red cell distribution width is a marker of anisocytosis and often used to evaluate the possible causes of the anemia. Elevated red cell distribution width levels are also reported to be associated with acute and chronic inflammatory responses. In nonalcoholic steatohepatitis hepatic steatosis is associated with hepatic inflammation. As red cell distribution width is not a specific marker, for assuming it as an indicating marker of nonalcoholic steatohepatitis and fibrotic stage, other confounding factors such as levels of inflammatory markers might be evaluated.

Gulcan Kurt Y, Cayci T, Aydin FN, Agilli M. Red cell distribution width and nonalcoholic steatohepatitis. *World J Gastroenterol* 2014; In press

**TO THE EDITOR**

Cengiz *et al*[1] reported the role of red cell distribution width (RDW) as an indicating marker of nonalcoholic steatohepatitis and fibrotic stage in a recent issue of World Journal of Gastroenterology. This study provides scientific information on the clinical utility of RDW for indicating the presence of nonalcoholic steatohepatitis (NASH). Although there are some papers indicating a relationship between RDW and NASH[2] and fibrosis[3], we think that some points should be discussed in this article. ​Firstly, the progression of NASH is strongly associated with lobular inflammation in liver and chronic systemic inflammation[1]. It has been reported that acute and chronic inflammatory responses are associated with elevated RDW level[4]. There is no information regarding the inflammatory status of all subjects, such as levels of C-reactive protein, tumor necrosis factor-alpha, interleukin 6 in the study. ​Secondly, medication of the patients (for example antihypertensive drugs including selective β1 receptor blockers) with NASH is not stated in the text. RDW is a marker of anisocytosis (red cell size variation), which is usually evaluated in a fully automated hematology analyzer, as part of the complete blood count[5]. The RDW levels may also reflect neurohumoral activation, thyroid disease, acute or chronic inflammation and selective β1 receptor blockers such as nebivolol and metoprolol[6,7]. Therefore, in our opinion, assessment of RDW could not provide reliable information. ​Finally, the authors investigated the relationship between the RDW levels and the presence of NASH and also fibrotic score in patients with NASH[1]. Assuming RDW as an indicating marker of nonalcoholic steatohepatitis and fibrotic stage needs evaluation of other intervening factors such as levels of inflammatory markers. The findings of this article would be more valued if additional datas for major metabolic confounders have been mentioned.

**REFERENCES**

1 **Cengiz M**, Candır BA, Yılmaz G, Akyol G, Ozenirler S. Is increased red cell distribution width an indicating marker of nonalcoholic steatohepatitis and fibrotic stage? *World J Gastroenterol* 2013; **19**: 7412-7418 [PMID: 24259972 DOI: 10.3748/wjg.v19.i42.7412]

2 **Yang W**, Huang H, Wang Y, Yu X, Yang Z. High red blood cell distribution width is closely associated with nonalcoholic fatty liver disease. *Eur J Gastroenterol Hepatol* 2014; **26**: 174-178 [PMID: 24025980 DOI: 10.1097/MEG.0b013e328365c403]

3 **Kim HM**, Kim BS, Cho YK, Kim BI, Sohn CI, Jeon WK, Kim HJ, Park DI, Park JH, Joo KJ, Kim CJ, Kim YS, Heo WJ, Choi WS. Elevated red cell distribution width is associated with advanced fibrosis in NAFLD. *Clin Mol Hepatol* 2013; **19**: 258-265 [PMID: 24133663 DOI: 10.3350/cmh.2013.19.3.258]

4 **Agarwal S**. Red cell distribution width, inflammatory markers and cardiorespiratory fitness: results from the National Health and Nutrition Examination Survey. *Indian Heart J* 2012; **64**: 380-387 [PMID: 22929821 DOI: 10.1016/j.ihj.2012.06.006]

5 **Yaman H**, Celik T, Akgul EO, Cayci T, Kurt Y. Red cell distribution width and acute coronary syndromes. *Int J Cardiol* 2010; **145**: 353; author reply 354-355 [PMID: 19995672 DOI: 10.1016/j.ijcard.2009.11.010]

6 **Aydin I**, Aydin FN, Agilli M. The association of red cell distribution width and morbid obesity. *Clin Biochem* 2014; In press [PMID: 24747693 DOI: 10.1016/j.clinbiochem.2014.04.011]

7 **Aydin I**, Aydin F, Agilli M. The association between red cell distribution width and venous thromboembolism: a biochemical evaluation. *Thromb Res* 2014; **133**: 1164 [PMID: 24731556 DOI: 10.1016/j.thromres.2014.03.049]

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