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Current Opinion: Mean Platelet Volume Is One of the Most Important Parameters at the First Glance

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Dear Editor,

We read with great interest the article ‘Mean platelet volume is increased in infective endocarditis and decreases after treatment’ [1]. The authors showed that elevated mean platelet volume (MPV) values indicated that patients with infective endocarditis had increased platelet activation and infective endocarditis treatment decreased the platelet activation by decreasing MPV.

It is known that procoagulant changes in platelet activity may be considered in patients with infective endocarditis due to inflammation [2]. This inflammation-induced hypercoagulability may lead to embolization, one of the major causes of death. MPV is a marker routinely provided by a full blood count analyzer, it correlates with platelet function and activation [3]. MPV also indicates the function of platelets, which is central to processes that are involved in coronary heart disease pathophysiology and endothelial dysfunction [4]. It has also been related to diabetes mellitus, peripheral artery disease, atrial fibrillation, previous surgical history, trauma, cancer, immobilization, medications such as anticoagulant therapy, statins, and other platelet dysfunctions [5]. On the other hand, inflammation plays a major role in the pathogenesis of

many diseases such as ankylosing spondylitis, psoriasis, Behçet’s disease [6], thyroid and rheumatic diseases [3]. However, these other factors that affect platelet function should be considered. MPV by itself, without any other inflammatory markers, may not give information to clinicians about the inflammatory condition of the patient at the first glance [7].

References

- 1 Icli A, Tayyar S, Varol E, et al: Mean platelet volume is increased in infective endocarditis and decreases after treatment. *Med Princ Pract* 2013; 22:270–273.
- 2 Gunbakmaz O, Kaya MG, Kaya EG, et al: Mean platelet volume predicts embolic complications and prognosis in infective endocarditis. *Int J Infect Dis* 2010; 14:e982–e985.
- 3 Balta S, Demirkol S, Cakar M, et al: Mean platelet volume as a surrogate marker of low-grade inflammation in osteoarthritis. *Platelets* 2013, DOI: 10.3109/09537104.2013.786824.
- 4 Demirkol S, Balta S, Unlu M, et al: Evaluation of the mean platelet volume in patients with cardiac syndrome X. *Clinics (São Paulo)* 2012; 67: 1019–1022.
- 5 Balta S, Demirkol S, Kucuk U, et al: Hemostatic markers can be pivotal roles of risk factors for new-onset atrial fibrillation. *Platelets* 2013, DOI: 10.3109/09537104.2013.778398.
- 6 Ekiz O, Balta I, Sen BB, et al: Mean platelet volume in recurrent aphthous stomatitis and Behçet disease. *Angiology* 2013, DOI: 10.1177/0003319713492375.
- 7 Balta S, Demirkol S, Celik T, et al: Association between coronary artery ectasia and neutrophil-lymphocyte ratio. *Angiology* 2013, DOI: 10.1177/0003319713480424.

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Reply

The Role of Mean Platelet Volume in Infective Endocarditis

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We would like to thank Balta et al. for their interest in our article [1]. They stated that mean platelet volume (MPV) can be affected by many factors and MPV itself alone without other inflammatory markers may not give information to clinicians about the inflammatory condition of the patient at the first glance. They think that it should be evaluated together with other inflammatory markers. These statements are absolutely true. We did not measure

inflammatory markers because we excluded inflammatory diseases such as rheumatic diseases in our study. In addition, infective endocarditis (IE) is an acute clinical inflammatory state and it will not be surprising to find elevated inflammatory markers. MPV is also closely related to cardiovascular diseases and we also excluded cardiovascular diseases such as heart failure and acute coronary syndromes [2]. Whatever may cause inflammatory markers or IE

itself, MPV values are increased in patients with IE and decreased after treatment. In a previous related study, Gunebakmaz et al. [3] found that MPV was significantly higher in patients with observed embolic complications, other complications and death. As a result, we think that MPV is an important marker in IE also as a prognostic factor.

MPV is universally available with routine blood counts by automated hemograms and a simple and easy method of assessing platelet function. In comparison to smaller ones, larger platelets have more granules, aggregate more rapidly with collagen, have a higher thromboxane A2 level and express more glycoprotein Ib and IIb/IIIa receptors. Recently, Shah et al. [4] investigated the MPV reproducibility and association with platelet activity and antiplatelet therapy. They demonstrated that MPV is modestly associated with some, but not all, markers of platelet activity. We can say that larger platelets have higher platelet activity [5]. Further studies are needed in this area.

Disclosure Statement

The authors have stated that there are no conflicts of interest in connection with this article.

References

- 1 Icli A, Tayyar S, Varol E, Aksoy F, Arslan A, Ersoy I, Akcay S: Mean platelet volume is increased in infective endocarditis and decreases after treatment. *Med Princ Pract* 2013;22:270–273.
- 2 Vizioli L, Muscari S, Muscari A: The relationship of mean platelet volume with the risk and prognosis of cardiovascular diseases. *Int J Clin Pract* 2009;63:1509–1515.
- 3 Gunebakmaz O, Kaya MG, Kaya EG, Ardic I, Yarlioglu M, Dogdu O, Kalay N, Akpek M, Sarli B, Ozdogru I: Mean platelet volume predicts embolic complications and prognosis in infective endocarditis. *Int J Infect Dis* 2010;14:982–985.
- 4 Shah B, Valdes V, Nardi MA, Hu L, Schrem E, Berger JS: Mean platelet volume reproducibility and association with platelet activity and antiplatelet therapy. *Platelets* 2013, DOI: 10.3109/09537104.2013.793794.
- 5 Park Y, Schoene N, Haris W: Mean platelet volume as an indicator of platelet activation: methodological issues. *Platelets* 2002;13:301–306.

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