Letter

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Clinical Marker of Platelet Hyperreactivity in Diabetes Mellitus (*Diabetes Metab J* 2013;37:423-8)

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Dear Editor,

We read with great interest the review article by Kim et al. [1] entitled with "Clinical marker of platelet hyperreactivity in diabetes mellitus." In this review, the authors described the mean platelet volume (MPV) as a clinical marker of platelet function abnormalities in patients with diabetes mellitus. We would like to comment on this topic.

Turbidimetric platelet aggregometry developed in the 1960s revolutionized the ability to identify and diagnose alterations in platelet function and soon became the gold standard test for platelet function testing. The measurement of MPV or other platelet indices are not used as platelet function tests [2].

Beyan et al. [3] aimed to investigate whether platelet indices have a correlation with platelet aggregation responses using optical method in healthy adults and to evaluate the predictive significance of platelet indices over platelet aggregation responses. They found no correlation between any of platelet indices including platelet count, MPV, platelet mass, platelet distribution width, and plateletcrit and platelet aggregation responses induced with adenosine diphosphate, collagen and epinephrine. Recently, De Luca et al. [4] reported a study to investigate whether MPV was associated with platelet reactivity and the extent of coronary artery disease among diabetic patients. They performed a cohort study including 1,016 consecutive diabetic patients undergoing coronary angiography. Platelet aggregation was evaluated by light transmission aggregometry after stimulation with collagen. They found MPV was not related to platelet reactivity and concluded that MPV may not be considered a risk factor for coronary artery disease among diabetic patients. Therefore, it does not seem possible to use mean platelet volume or other platelet indices as a direct indicator of platelet activation or function.

On the other hand, the correct measurement of MPV is dependent on a number of variables, including time of analysis after venipuncture, method of analysis, anticoagulant used and specimen storage temperature [5]. The MPV varies with time in ethylenediaminetetraacetic acid (EDTA) anticoagulated samples. EDTA induced platelet size changes result in a progressive increase in MPV with impedance technology. The MPV increases up to 30% within 5 minutes of exposure, and increases further by 10% to 15% over the next 2 hours [6]. Also, the reference range of MPV is specific to the individual technologies. Different technologies for measuring the MPV give different results. Studies comparing results from these instruments have shown MPV differences of up to 40% [7].

As a result, MPV may not be a suitable indicator of platelet function abnormalities in diabetic patients.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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REFERENCES

1. Kim JH, Bae HY, Kim SY. Clinical marker of platelet hyperreactivity in diabetes mellitus. Diabetes Metab J 2013;37:423-8.
2. Harrison P: Platelet function testing. Available from: http://www.uptodate.com/contents/platelet-function-testing (updated 2012 Sep 28).
3. Beyan C, Kaptan K, Ifran A. Platelet count, mean platelet volume, platelet distribution width, and plateletcrit do not correlate with optical platelet aggregation responses in healthy volunteers. J Thromb Thrombolysis 2006;22:161-4.
4. De Luca G, Verdoia M, Cassetti E, Schaffer A, Di Giovine G, Bertoni A, Di Vito C, Sampietro S, Aimaretti G, Bellomo G, Marino P, Sinigaglia F; Novara Atherosclerosis Study (NAS) group. Mean platelet volume is not associated with platelet reactivity and the extent of coronary artery disease in diabetic patients. Blood Coagul Fibrinolysis 2013;24:619-24.
5. Lance MD, Sloep M, Henskens YM, Marcus MA. Mean platelet volume as a diagnostic marker for cardiovascular disease: drawbacks of preanalytical conditions and measuring techniques. Clin Appl Thromb Hemost 2012;18:561-8.
6. Jackson SR, Carter JM. Platelet volume: laboratory measurement and clinical application. Blood Rev 1993;7:104-13.
7. George TI: Automated hematology instrumentation. Available from: http://www.uptodate.com/contents/automated-hematology-instrumentation (updated 2012 Jul 24).