

Mean Platelet Volume and Its Predictive Role in Chronic Heart Failure: Technical Observations [Letter]

John L Frater 

Department of Pathology and Immunology, Washington University, St. Louis, Missouri, USA

Correspondence: John L Frater, Department of Pathology and Immunology, Washington University School of Medicine, 660 South Euclid Avenue, Box 8118, St. Louis, Missouri, 63110-1093, USA, Tel +1 314362-1553, Email jfrater@wustl.edu

Dear editor

Andrei et al have recently published “Mean Platelet Volume: A Possible Predictor for Patients with Decompensated Chronic Heart Failure” in *International Journal of General Medicine*.¹ I congratulate the authors for their paper, which adds to the expanding literature on complete blood cell count (CBC)-derived biomarkers such as the mean platelet volume (MPV) and their potential roles in the care of patients with cardiac disease. I would like to add some technical comments on the MPV that would be of interest to the readership of *International Journal of General Medicine* who are interested in using the MPV in the clinical setting.

First, it is noteworthy that the MPV is particularly sensitive to preanalytical variables that may result in erroneous values. These include prolonged time between phlebotomy and analysis, anticoagulant type, storage conditions (including ambient temperature), and transport conditions (such as pneumatic tube transport).² These factors may be particularly difficult to control, particularly in outpatient and emergency settings where specimens are collected throughout the workday and couriered to a central laboratory for analysis. I note that Andrei et al state that their specimens were processed by the hospital laboratory on the same day as phlebotomy.¹ I would add that it is considered best practice to process and analyze blood specimens within 1 hour of phlebotomy, since delays as brief as one hour have been noted to result in bias in the result of several CBC-based analytes, including platelet parameters such as the MPV.³

A second issue relates to the degree to which studies that rely on MPV data are generalizable. I note that the authors mentioned the analyzer and manufacturer used in this study (Beckman Coulter ACT 5 diff AL, Beckman Coulter, Miami, FL, USA). Since there are well-described issues with harmonization of the MPV among analyzers, even those that use a similar methodology,⁴ it is important to report this information in the interest of complete transparency. Although an internationally recognized standard for the MPV has not yet been established, the International Council for Standardization in Hematology (ICSH) has recently evaluated a commercially available fixed porcine platelet preparation for this purpose,⁵ and widespread use of this or similar product may improve the reproducibility of the MPV across different instrumentation platforms.

A third problem, which is a common issue in studies that evaluate the clinical use of the MPV, relates to the narrow dynamic range of the MPV.⁵ For example, in the study of Andrei et al the difference of the mean value of the MPV between the control and study populations was <1fL (8.74fL vs 9.08fL). In view of the current technological limitations and issues with preanalytical and analytical variables, it would be difficult to meaningfully interpret individual patient results, particularly in individuals with borderline MPV values.

In closing, I again thank Andrei et al for their paper, which adds to the growing literature on clinical implementation of the MPV. Although at this time it may be premature to recommend the MPV for the use described in the paper, in a setting with stringent control of preanalytical variables and improved instrument development processes, the MPV and other CBC-derived data may be of increased use in the clinical setting.

Disclosure

The author reports no conflicts of interest in this communication.

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