Wien Klin Wochenschr (2021) 133:247–248
https://doi.org/10.1007/s00508-020-01715-9

Wiener klinische Wochenschrift
The Central European Journal of Medicine

Plateletcrit may not provide a distinction between patients with adult-onset Still's disease and sepsis

Cengiz Beyan · Esin Beyan

Received: 25 May 2020 / Accepted: 29 June 2020 / Published online: 16 July 2020

Dear Editor,

We read with great interest the retrospective studies of Zhang et al. aimed at evaluating some parameters of complete blood count to differentiate adult-onset Still's disease (AOSD) from sepsis [1]. Researchers have suggested that the plateletcrit (PCT) is a useful parameter for differentiating between AOSD and sepsis. We believe that there were other factors that had negative effects on the results of the study.

First of all, PCT is a parameter found by calculation and its formula is PCT = platelet count × mean platelet volume (MPV) / 10,000. Therefore, the calculated PCT value is directly related to the MPV value measured by blood analyzers.

In this study, only data from patients with AOSD and sepsis were available. The absence of a healthy control group in comparisons made it impossible to understand the response of the results compared to the healthy population. Moreover, all patient data were obtained retrospectively from electronic medical records. It is not possible to exclude preanalytical and analytical errors in retrospective studies, and the necessity to exclude them especially for MPV measurements has been reported [2].

The MPV used in PCT calculation is a complete blood count parameter that has not been provided with measurement standardization until now. It has been reported that it is not possible to use this parameter as a marker in diagnosis or evaluation of the prognosis in acquired diseases, since standardization has not been achieved in MPV measurement [3]. One of the most important variables affecting the standardization of MPV measurement is the time from venepuncture to the time of measurement in the blood analyzers [4, 5]. Platelets that come into contact with ethylenediaminetetraacetic acid (EDTA), which is used as anticoagulant in whole blood tubes, begin to swell rapidly [4, 6]. In various publications, the deviation rate according to the measurement time has been reported as 2–50% [4, 5]. Since the study of Zhang et al. was conducted in a retrospective nature, the time until measurement after venepuncture was not standardized. Therefore, the deviations in MPV values caused deviations in the PCT values found by the calculation and made the PCT data unreliable in this study.

Another point was that in the study of Zhang et al. a cut-off value was defined for PCT to be used in the differentiation of AOSD and sepsis. One of the factors that negatively affect standardization in MPV measurements is the difference of the devices used in the complete blood count. The MPV discrepancies up to 40% were reported with comparison of the blood analyzers [5, 7, 8]. In this study, a Sysmex XE 2100 blood analyzer (Sysmex, Kobe, Japan) was used for measurements and the cut-off value determined cannot be used for other blood analyzers.

As a result, PCT values may not provide a distinction between AOSD and sepsis diagnoses in patients.

Conflict of interest C. Beyan and E. Beyan declare that they have no competing interests.

Prof. C. Beyan, MD. (✉)
Faculty of Medicine, Ufuk University, Cigdem Mahallesi, 1551. Cadde, Iskent sitesi, No: 7/7, 06520 Cankaya, Ankara, Turkey
cengizbeyan@hotmail.com

Prof. E. Beyan, MD.
Kecioren Training and Research Hospital, Department of Internal Medicine, University of Health Sciences, Ankara, Turkey
esinbeyan@hotmail.com

References

1. Zhang M, Xie M, Wang Y, Li J, Zhou J. Combination value of biomarkers in discriminating adult onset still's disease and sepsis. Wien Klin Wochenschr. 2020; https://doi.org/10.1007/s00508-020-01668-z.
2. Harrison P, Goodall AH. Studies on mean platelet volume (MPV)—New editorial policy. Platelets. 2016;27(7):605–6. https://doi.org/10.1080/09537104.2016.1225467.
3. Noris P, Melazzini F, Balduini CL. New roles for mean platelet volume measurement in the clinical practice? Platelets. 2016;27(7):607–12. https://doi.org/10.1080/09537104.2016.1224828.
4. Jackson SR, Carter JM. Platelet volume: laboratory measurement and clinical application. Blood Rev. 1993;7(2):104–13. https://doi.org/10.1016/s0268-960x(05)80020-7.
5. Beyan C, Beyan E. Were the measurements standardized sufficiently in published studies about mean platelet volume? Blood Coagul Fibrinolysis. 2017;28(3):234–6. https://doi.org/10.1097/MBC.0000000000000586.
6. Lancé MD, van Oerle R, Henskens YM, Marcus MA. Do we need time adjusted mean platelet volume measurements? Lab Hematol. 2010;16(3):28–31. https://doi.org/10.1532/LH96.10011.
7. Lippi G, Pavesi F, Pipitone S. Evaluation of mean platelet volume with four hematological analyzers: harmonization is still an unresolved issue. Blood Coagul Fibrinolysis. 2015;26(2):235–7. https://doi.org/10.1097/MBC.0000000000000220.
8. Latger-Cannard V, Hoarau M, Salignac S, Baumgart D, Nurden P, Lecompte T. Mean platelet volume: comparison of three analysers towards standardization of platelet morphological phenotype. Int J Lab Hematol. 2012;34(3):300–10. https://doi.org/10.1111/j.1751-553X.2011.01396.x.