Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Mean platelet volume may not be a mortality marker in patients with COVID-19 pneumonia

Dear Editor,

We read with great interest the retrospective study of Isler and Kaya, which evaluated the association of various parameters with 28-day mortality in patients with coronavirus disease of 2019 (COVID-19) pneumonia [1]. Researchers suggested that mean platelet volume (MPV) and MPV to platelet count ratio could be used to determine 28-day mortality. We would like to express the existence of factors that may have adversely affected the MPV-related results of this study.

Although modern automated blood counters routinely report platelet indices such as MPV, MPV measurement has not been standardized until today, and therefore, it is exactly not recommended to use MPV measurement for purposes such as diagnosis and prognosis, especially in acquired diseases [2]. The main problems that negatively affect MPV standardization are how long after blood collection the MPV measurement is made, which anticoagulant is used in the blood tube, and which blood counter was used to measure the MPV [3-6]. Platelets exposed to ethylenediaminetetraacetic acid (EDTA), the most widely used anticoagulant, undergo shape change and develop pseudopods. The change in MPV values after exposure to EDTA is up to 30% in the first five minutes and up to 40–45% in the first 2 h [3]. In various studies using EDTA as an anticoagulant, deviations in MPV values vary between 2 and 50%, depending on how long after blood collection MPV is measured [3,4]. Other anticoagulants also cause an increase in MPV values, and MPV values differ according to the choice of anticoagulant [7]. The optimal measurement time of MPV values also varies depending on the anticoagulant used, and Lance et al. found the optimal measurement time to be 60 min and 120 min after blood collection for sodium citrate and dipotassium EDTA, respectively [7]. In addition, there are deviations of up to 40% between different automated blood counters for the measurement of MPV values [4-6]. In Isler and Kaya's study, all data were obtained from electronic hospital records and there is no description of how MPV measurement was performed. In this study, MPV measurement time, which anticoagulant was used, and the measurements were made with which blood counter/s, which are the main factors that directly affect MPV standardization, were not specified, and therefore, the reliability of MPV data was negatively affected. Moreover, the retrospective nature of the research makes it impossible to exclude preanalytical and analytical errors, and failure to exclude analysis errors is unacceptable, especially for MPV data [8]. The fact that there was only a group of patients with COVID-19 pneumonia in the study and the absence of a healthy control group also makes it impossible to understand whether MPV results are actually abnormal.

Another point to be noted is that MPV to platelet count ratio has been defined by researchers as an indicator of platelet functions. Light transmission platelet aggregometry is the gold standard test for the assessment of the platelet functions and studies using this method have not shown the existence of a correlation between platelet count, mean platelet volume, platelet distribution width, and plateletcrit and optical platelet aggregation responses [9,10].

As a result, MPV and related calculations may not be useful in determining 28-day mortality in patients with COVID-19 pneumonia.

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Declaration of Competing Interest

None.

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