



Mean platelet volume may not decrease in patients with acute appendicitis

Cengiz Beyan¹ · Esin Beyan²

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Dear Editor,

We read with great interest the meta-analysis study examining platelet indices in patients with acute appendicitis [1]. As a result of this meta-analysis study, Shen et al. suggested that there was a significant decrease in mean platelet volume (MPV) value in patients with acute appendicitis. We think that the methodological problems in the studies included in the meta-analysis may have affected the MPV data in this meta-analysis study.

Seventeen studies were included in this meta-analysis study, and the methodological features of these studies are shown in Table 1. MPV measurement has not yet been standardized, and it is not recommended to be used for purposes, such as diagnosis or prognosis, especially in acquired diseases [2]. The main variables affecting the MPV measurement are the type of anticoagulant contained in the blood tube, the time from blood draw to measurement, and which blood counter is used in the measurement [3–5]. It has been shown that the diameters of platelets gradually increase by contact with anticoagulants, such as ethylenediaminetetraacetic acid (EDTA) or citrate [3, 4]. The difference in the measurement time after contact with the anticoagulants causes 2–50% deviations in MPV results [3]. Lance et al. emphasized that the optimum MPV measurement time

should be 60 and 120 min after blood collection according to the use of citrate or EDTA as anticoagulants, respectively [4]. Similarly, the difference in complete blood counters can cause deviations of up to 40% in MPV results [5]. Only eight (47%) of the studies included in this meta-analysis stated which anticoagulant was used. The time from blood draw to measurement was recorded in only five (29%), and none of these occurred at the recommended optimum measurement time. Blood analyzers used in the measurement were specified in 12 studies (71%), and these were devices with different technologies. In other words, MPV measurement methodologies in studies included in the meta-analysis study have distinct differences and shortcomings, making the MPV meta-analysis based on their cumulative evaluation invalid and unreliable. Moreover, in almost all of these studies (94%), the study design was retrospective and pre-analytical and analysis-related errors in these retrospective studies could not be ruled out. For MPV measurements, it was especially emphasized that analysis-related errors should be absolutely ignored. Although various control groups were defined in the studies included in the meta-analysis, only 11 (65%) of the 17 studies had a healthy control group. In MPV studies, it is necessary to make a comparison with the data of the healthy control group to understand whether the data in the patient group are indeed pathological.

In conclusion, the determination of the decrease in MPV values in patients with acute appendicitis may not reflect the truth as the studies included in this meta-analysis study contain significant methodological differences and inadequacies.

✉ Cengiz Beyan
cengizbeyan@hotmail.com

Esin Beyan
esinbeyan@hotmail.com

¹ Faculty of Medicine, Ufuk University, Cigdem Mahallesi, 1551. Cadd. Iskent sitesi, No: 7/7, Cankaya, 06520 Ankara, Turkey

² Department of Internal Medicine, Kecioren Training and Research Hospital, University of Health Sciences, Ankara, Turkey

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Code availability Microsoft Office doc document (.docx).

Compliance with ethical standards

Conflict of interest The authors have no conflicts of interest to declare that are relevant to the content of this article.

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