



## Is mean platelet volume and inflammatory activity really correlated in patients with ankylosing spondylitis?

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LETTER TO THE EDITOR

## Is mean platelet volume and inflammatory activity really correlated in patients with ankylosing spondylitis?

Dear Editor,

We read the meta-analysis study by Song and Lee [1], which evaluated the relationship between inflammation and various parameters including mean platelet volume (MPV) in patients with ankylosing spondylitis. The authors suggested that MPV was not elevated in patients with ankylosing spondylitis, but there was a correlation between MPV and C-reactive protein values. We would like to comment because we think that there were different factors that might be affected the MPV-related results of this meta-analysis study.

First of all, the researches on MPV included in this meta-analysis study were only five and very few [2–6]. Moreover, only one of the studies was performed prospectively [3] and the others were retrospectively. As is well known, it is not possible to rule out the pre-analytical and analytical errors in retrospective studies.

The most important problem that negatively affected the results of the meta-analysis study conducted by the researchers is that the standards to be used in MPV measurement have not been yet fully established up to today. Jackson and Carter [7] reported that MPV values change with a number of variables, including time of analysis after venipuncture, methods of analysis like as impedance or optical technology, anticoagulant used as ethylenediaminetetraacetic acid (EDTA), citrate or others, and specimen storage temperature. MPV values were changed varying size as 2–50% when EDTA was used as an anticoagulant [7]. Also, it is known that the results may vary according to the instruments used for MPV measurement [8]. We performed a meta-analysis study [9] using the data of 181 studies containing a healthy control groups within 1181 studies about MPV indexed PubMed database. We showed that the maximum deviations in MPV measurements by the MPV measurement times and plus the instruments used varied up to 12.5% and 27.7%, respectively.

Only one of the studies included in this meta-analysis study [2] indicated the time from blood collection to measurement. The devices used for MPV measurement in the studies were different. Anticoagulants used in three out of five studies were undefined, and the other two were EDTA and high concentrate (1:4) citrate. Moreover, in two studies in terms of gender distribution [2,6] and in one study for age distribution [6], there was a difference between patient and control groups, which might have been a negative effect on results [10].

MPV results were also contradictory in the studies included in the meta-analysis. In the patient group, MPV results were high in two studies, low in one study and no difference in two studies compared to the control group. These contradictory results supported the lack of standardization of the MPV measurement in the studies, too.

In conclusion, in order to understand the relationship between MPV values and inflammatory activity in patients with ankylosing spondylitis, it is necessary to carry out studies in which MPV measurement standardization is provided.

### Conflict of interest

None.

### References

1. Song GG, Lee YH. Red cell distribution width, platelet-to-lymphocyte ratio, and mean platelet volume in ankylosing spondylitis and their correlations with inflammation: a meta-analysis. *Mod Rheumatol*. 2019;1. doi:10.1080/14397595.2019.1645373
2. Kisacik B, Tufan A, Kalyoncu U, Karadag O, Akdogan A, Ozturk MA, et al. Mean platelet volume (MPV) as an inflammatory marker in ankylosing spondylitis and rheumatoid arthritis. *Joint Bone Spine*. 2008;75(3):291–4.
3. Yazici S, Yazici M, Erer B, Erer B, Calik Y, Bulur S, et al. The platelet functions in patients with ankylosing spondylitis: anti-TNF-alpha therapy decreases the mean platelet volume and platelet mass. *Platelets* 2010;21(2):126–31.
4. Inal EE, Sunar I, Sarataş Ş, Eroğlu P, Inal S, Yener M. May neutrophil-lymphocyte and platelet-lymphocyte ratios indicate disease activity in ankylosing spondylitis? *Arch Rheumatol*. 2015;30:130–7.
5. Sezgin M, Tecer D, Kanık A, Kekik FS, Yeşildal E, Akaslan E, et al. Serum RDW and MPV in ankylosing spondylitis: Can they show the disease activity?. *Clin Hemorheol Microcirc*. 2017;65(1):1–10.
6. İllez ÖG, Özkan FÜ, Aktaş İ. Parameters of total blood count; might they be indicators of inflammation in rheumatoid arthritis and ankylosing spondylitis? *Acta Medica Mediterranea*. 2018;34:1751–6.
7. Jackson SR, Carter JM. Platelet volume: laboratory measurement and clinical application. *Blood Rev*. 1993;7(2):104–13.
8. 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.
9. Beyan C, Beyan E. Were the measurements standardized sufficiently in published studies about mean platelet volume?. *Blood Coagul Fibrinolysis*. 2017;28(3):234–6.
10. Noris P, Melazzini F, Balduini CL. New roles for mean platelet volume measurement in the clinical practice? *Platelets* 2016; 27(7):607–12.

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