The Evaluation of the Neutrophil-to-Lymphocyte Ratio in Coronary Chronic Total Occlusion

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Dear Editor,

We read with great interest the recently published article on the relationship between the neutrophil-to-lymphocyte ratio (NLR) and coronary collateral circulation (CCC) in patients with coronary chronic total occlusion in which the authors concluded that NLR correlates with the impaired development of coronary collaterals [1]. However, we think that there are some points that should be emphasized about this study.

First, as indicated in the original study, some clinical conditions (active and ongoing infection, chronic inflammatory disease, etc.) that may affect the total and differential white blood cell (WBC) count were excluded to avoid possible confounders for NLR. However, in such studies aimed to determine predictive markers by using laboratory results, it would be better to identify a specific WBC count range within the exclusion criteria [2]. As a matter of fact, as can be seen in table 1 of the study, there were patients with an elevated WBC count in both the patient groups with impaired and good CCC [1]. As is known, a high WBC count is not a specific disease; it can indicate infection, stress, inflammation, trauma, allergy, or other diseases [3]. Moreover, the WBC reference ranges may vary depending on many factors such as the population studied, the individual laboratory and the instruments (e.g. types of collection tubes) or measurement methods used (e.g. waiting period prior to analysis) [4]. Determining the specific WBC count range, as well as clinical conditions likely to affect the WBC count, could avoid a possible bias in patient selection.

Second, NLR is an easily available and inexpensive marker in daily clinical practice. It guides individualized treatment decisions (particularly in patients with cardiovascular diseases), integrates

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the detrimental effects of neutrophilia (an indicator of inflammation) and lymphopenia (an indicator of physiological stress) and has emerged as a useful prognostic marker in many other studies which claim inflammation as the main cause of pathology [5, 6]. Hence, in order to assess the value of the NLR in such studies, it is important to show whether the increase of NLR is a result of a low lymphocyte count or a high neutrophil count. However, neutrophil and lymphocyte counts were not provided in this study [1]. Therefore, it cannot be said that inflammation alone is responsible for this increase in NLR. As is known, a decreased lymphocyte count has been associated with malnutrition and lymphopenia and is used as an indicator of malnutrition [7]; hence, a decrease in lymphocyte count increases NLR. However, the nutritional status of participants has not been evaluated, and there is no effective laboratory indicator identifying malnutrition as the cause of lymphopenia in the original study. As is known, serum proteins, particularly albumin, have often been used to assess malnutrition. Albumin has a relatively long half-life, approximately 14–20 days, and because of this it has been touted as a marker of chronic nutritional status. Therefore, it would be better to at least assess albumin levels to evaluate the correlation between albumin levels and nutritional status in the current study.

In conclusion, not identifying a specific WBC count range within the exclusion criteria, as well as not providing neutrophil and lymphocyte counts directly, may lead to improper interpretations about the presence of inflammation in these patients.

References

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