

Neutrophil-to-Lymphocyte Ratio, Platelet-to-Lymphocyte Ratio and Heart Failure

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Dear Editor, the recent report on “Neutrophil-to-Lymphocyte Ratio (NLR), Platelet-to-Lymphocyte Ratio (PLR) and Heart Failure” is very interesting.¹ Durmus et al.¹ reported that “NLR can be used to predict mortality during the follow-up of HF patients.” Indeed, the use of a new parameter for predicting heart failure is very interesting. However, as Durmus et al.¹ mentioned, both NLR and PLR “were not sufficient to establish a diagnosis of HF.” In addition, although the present report¹ was well designed as a matched case-control study, the problem on NLR and PLR should be

discussed in view of laboratory medicine. Both parameters are non - specific. Several factors can affect neutrophils, lymphocytes and platelets. Other concomitant disorders such as immunological and malignant disorders can alter the NLR and PLR values.²⁻³ Also, metabolic syndrome, which is common among the patients with cardiac disease, can also affect NLR and PLR values.⁴ In addition, different automated hematological analyzers can also give different results of neutrophil, lymphocyte and platelet measurements.⁵

Keywords

Neutrophils; Heart Failure; Lymphocytes.

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Reply

We recently published a trial named “Neutrophil-to-Lymphocyte Ratio (NLR) and Platelet-to-Lymphocyte Ratio (PLR) are Predictors of Heart Failure (HF)”.¹ In this study, we found that NLR can be used to predict mortality during the follow-up of HF patients. However, NLR and PLR were not sufficient to establish a diagnosis of HF. According to guidelines, HF diagnosis is generally made based on clinical signs and symptoms of patients. Other examinations and laboratory test are used to support or to rule out the HF diagnosis.² Although NLR and PLR were higher in HF patients when compared to healthy controls, they are not sufficient, alone, to establish the diagnosis of HF. Use of n-terminal pro brain natriuretic peptide, a commonly used biomarker in congestive HF management, alone, is also not enough for diagnosis of HF, as the use of NLR alone.³ Another problem regarding the use of NLR and PLR in HF patients is the lack of specificity. NLR and PLR are ratios of different subgroups of blood cells. So, they should be affected in various disease situations. Neutrophil count may be increased in patients with a bacterial infection and platelets count may also be increased in patients with essential thrombocythemia. In our study, to minimize this

problem, we excluded patients who had malignancies, connective tissue diseases, acute and chronic infections, renal disease and acute coronary syndromes.

As mentioned in the letter, NLR and PLR can be affected by metabolic syndrome. In our study population, we did not assess the presence of metabolic syndrome. However, there was no difference between the NLR and PLR values of patients with or without hypertension (HT), hyperlipidemia (HL) and diabetes mellitus (DM).⁴ In a previously reported study, NLR levels tended to be high in patients with HT and DM. Finally, another criticism is that “different automated hematological analyzers can also give different results of neutrophil, lymphocyte and platelet measurements”. This is true, because different automated hematological analyzers use different techniques.⁵ But, considering the basic blood cell count, there was a good correlation between different automated hematological analyzers.⁶ And also, NLR and PLR are ratios of blood cells parameters, so they are not affected by the type of analyzers.

**Erdal Durmus, Tarik Kivrak, Fethullah Gerin,
Murat Sunbul, Ibrahim Sari, Okan Erdogan**

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