

The authors reply

In their "Letter to the Editor" Çelik and Bugan stressed the role of neutrophil to lymphocyte ratio in the prediction of cardiovascular (CV) events regarding our recent study "Total white blood cell count is associated with the presence, severity and extent of coronary atherosclerosis detected by dual-source multislice computed tomographic coronary angiography" published in *Cardiology Journal* [1].

They highlighted the importance of neutrophil to lymphocyte ratio as a more important parameter than total white blood cell (WBC) count regarding to the presence, severity and extent of coronary atherosclerosis according to the articles by Papa et al. [2] and Horne et al. [3]. Additionally, neutrophil to lymphocyte ratio was found as an independent predictor of worse outcome in patients with peripheral arterial disease as well as coronary artery disease [4]. However, there are significant differences between our study and the cited articles regarding several points. Papa et al. [2] evaluated the predictive ability for cardiac events of differential WBC counts. Similarly Horne et al. [3] investigated the predictive ability of WBC count and its subtypes for risk of death or myocardial infarction. However in our cross sectional study, we only evaluated the association between several aspects of coronary atherosclerosis including presence, severity and extent shown by multidetector computed tomography and total WBC count.

As the authors stated, despite the previous reports evaluating the association between coronary atherosclerosis and total WBC counts, recently there was renewed interest for WBC subtypes regarding their role in atherosclerosis and prognostic value for CV outcomes. It has been known that acute coronary syndrome is followed by neutrophilia stressing the role of neutrophils in ischemic CV disease, particularly in acute phases. Also neutrophils secrete large amounts of inflammatory mediators causing tissue injury and plaque destabilization. Furthermore neutrophil-mediated microvascular plugging may cause microvascular ischemia [5]. Additionally low lymphocyte counts were reported to play a putative role in accelerated atherosclerosis and worse cardiovascular outcomes [6]. In concordance with those observations, in a study by

Huang et al. [7], neutrophil count was found to add prognostic information to major adverse cardiac events in acute coronary syndrome. However, lymphocyte count was predictive of the severity of coronary atherosclerosis while not correlated with CV outcomes.

As a result, the clinical significance neutrophil to lymphocyte ratio is still unclear and its association with worse CV outcomes does not prove causality as stated before. Also, further studies are needed to evaluate the association of neutrophil to lymphocyte ratio with the severity and extent of coronary atherosclerosis. Although neutrophil to lymphocyte ratio revealed promising results to predict adverse events in both acute coronary syndrome and stable coronary artery disease, additional prospective data will be needed to resolve whether differential WBC counts are much stronger predictors of CV disease risk than other components [2, 8].

References

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