

# Letter to the Editor concerning “New Predictive Parameters of Bell’s Palsy: Neutrophil to Lymphocyte Ratio and Platelet to Lymphocyte Ratio”

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To the Editor,

I have read with great interest the article on Bell’s palsy and related blood count assessments by Atan et al. (1). The authors found that the neutrophil to lymphocyte ratio and platelet to lymphocyte are increased in patients with Bell’s palsy. Though increased compared to healthy controls, these ratios were not associated with increased paralysis severity. The authors state that these changes may be concordant with the pathogenesis because Bell’s palsy is an inflammatory disease.

However, from a hematological perspective, there are certain points that need to be emphasized to avoid misunderstanding and clinical confusion. The American Academy of Otolaryngology Head and Neck Surgery Foundation Clinical Practice Guideline on Bell’s Palsy highly recommend that oral corticosteroids should be started within 72 hours of symptom onset (2).

Corticosteroids are well known to show dramatic effects on blood cell counts. Specifically, the administration of glucocorticoids results in neutrophilic leukocytosis, accompanied by marked reductions in circulating eosinophils, monocytes and lymphocytes (3). These changes are so dramatic that a single dose of glucocorticoid leads to lymphopenia within 2 hours of the dose, peaked at 6 hours and resolved by 24 hours (4). The increase in circulating neutrophil is due to impaired neutrophilic migration to sites of inflammation, enhanced release of cells from the bone marrow and inhibition of apoptosis. Regarding lymphocytes, glucocorticoids rapidly deplete circulating T cells by enhanced circulatory emigration, inhibition of interleukin-2, a major T cell growth factor, impaired release of cells to the circulation and apoptosis induction (5). Number of circulating B cells are also reduced but to a lesser extent.

Although the major argument of this study is based upon altered blood cell count in Bell’s palsy, treatment is highly recommended to commence within 72 hours. The study presents no such treatment to achieve dramatic and rapid changes in

white blood cell count. In a hematological perspective, these changes may be attributable to the effects of treatment (glucocorticoids) rather than the disease itself. The authors’ not finding any relation between the severity of paralysis with the cell ratios, also support my assessment.

Furthermore, in retrospective studies, the countenance and reliability of factors, which may confound the main finding, are not easily managed. As stated as a retrospective study, derivation of the data leaves an obscure sensation in the reader’s mind.

In conclusion, I believe that this study, as presented to contribute to the literature with new findings should be considered under the information I have mentioned above.

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**Informed Consent:** N/A.

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## AUTHORS' REPLY

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To the Editor,

We appreciate your interest and comments on our paper. Recently, the neutrophil to lymphocyte ratio (NLR) and platelet to lymphocyte ratio (PLR) have been widely studied in various disorders. Lately, NLR and/or PLR have been studied in otorhinolaryngological disorders with a supposed inflammatory etiology, namely sudden hearing loss, nasal polyposis, and Bell's palsy (1-4). In our study, both NLR and PLR were found statistically significantly higher Bell's Palsy patients when compared to the controls. As mentioned in the study, the patients with comorbidities that could affect NLR and PLR were excluded. Use of corticosteroids is a condition that could affect NLR and PLR. In our clinical practice, we hospitalize the patients with Bell's Palsy, and they are treated under close supervision. Patients admitted to the outpatient clinic, pre-diagnosed with Bell's Palsy, and hospitalized give their blood samples for laboratory investigations in the outpatient clinic, before they are hospitalized and given any treatment. The results of the blood tests are examined before any drugs are administered. In our study, the blood samples used for analysis were obtained before administering any treatment to the patients. Systemic corticosteroids form the basis of the treatment of Bell's Palsy patients in our clinic, and those medications are administered after examining the blood test results of the patients.

Another concern may be administration of treatment at another center, before patients are admitted to our clinic. All of the patients included in our study were primary patients that were not treated in another center, and admitted to our center first. In conclusion, the PLR and NLR values were calculated before the patients were administered corticosteroids, and corticosteroids could not have affected our results.

The correlations of NLR and PLR with disease severity

remain unclear. Although some studies have demonstrated a correlation between disease severity and NLR (1,2), we did not find any correlation in our study. We believe that this was due to the inclusion of an insufficient number of cases for some clinical grades of Bell's Palsy, in our report as well as other published studies. We believe that this topic could be clarified by further studies performed on more patients. Studies on the correlation of NLR and PLR with disease severity may provide valuable information if correlations of NLR and PLR with electrophysiological test results are investigated in addition to the clinical grade of the disease.

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