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The role of neutrophil-to-lymphocyte ratio in predicting outcomes in patients with status epilepticus: Considerations beyond CBC

To the editor

We read with great interest the article "Admission neutrophil-to-lymphocyte ratio predicts length of hospitalization and need for ICU admission in adults with Status Epilepticus" by Olivo et al. [1]. The objective of the study was to investigate the correlation between admission neutrophil-to-lymphocyte ratio (NLR) and hospitalization time, need for ICU admission, and 30-day mortality in patients with Status Epilepticus (SE), as a new, uncomplicated, and dependable marker of inflammation. The study identified that the optimal NLR cutoff point for predicting the need for ICU admission was 3.6, which had 90.5% sensitivity and 45.3% specificity (95% confidence interval, area under the curve: 0.678; $p = 0.011$; Youden's index=0.358). The researchers concluded that admission NLR could be used as a prognostic indicator determining the length of hospitalization and need for ICU admission in SE patients. To our knowledge, this is the first report to investigate the association between NLR and patient outcomes in cases of SE. Based on their findings, NLR seems to hold significant potential as a marker that could be routinely employed in the evaluation of patients with SE in the ED. We would like to express our gratitude to the authors for their valuable contribution.

SE is a medical emergency that requires urgent evaluation and treatment [2]. Effective use of appropriate antiepileptic drugs (AEDs) is essential in controlling seizures, preventing the development of SE, and improving the quality of life for people living with epilepsy. Several risk factors increase the likelihood of SE, including encephalitis, subtherapeutic levels of AEDs, fluid and electrolyte imbalances, alcohol misuse, and hypoglycemia [3].

Complete blood count is a standard and minimally invasive diagnostic procedure that can provide essential information about a patient's formed blood components. It includes the counts and size of red and white blood cells, platelets, subgroups of cells, and various parameters, such as distribution width and ratio. Neutrophil counts are known to increase due to bacterial infections and steroid usage, whereas viral infections can cause an increase in lymphocyte counts [4]. It is also important to note that AEDs may have diverse hematological side effects, including megaloblastic anemia, macrocytosis, bone marrow depression, thrombocytopenia, leukopenia, neutropenia, pure red cell aplasia, and pancytopenia [5]. Changes in the ratio of neutrophil and lymphocyte counts may be observed in response to acute conditions, including bacterial or viral infections, as well as AED treatments, leading to a possible overlap between acute illness and ongoing chronic inflammation.

SE, the most dangerous and potentially life-threatening complication of seizures, frequently presents to the ED and is often a management

challenge for emergency physicians [6]. Various guidelines [7] and risk stratification scores, such as the Status Epilepticus Severity Score (STESS), the Epidemiology-Based Mortality Score in Status Epilepticus (EMSE), and the Encephalitis-Nonconvulsive Status Epilepticus-Diazepam Resistance-Image Abnormalities-Tracheal Intubation (END-IT) [8] have been developed to predict the likelihood of morbidity, mortality, or the need for ICU admission or hospitalization in patients with SE. As a result, we now stress that relying solely on LNR, without taking into account other inflammatory biomarkers and risk stratification score, is insufficient for accurately assessing a patient's overall inflammatory status or predicting the outcomes of patients with SE.

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