



LETTERS TO THE EDITOR

Relationship between complete blood count parameters and suicide: The role of neutrophil to lymphocyte ratio



Dear Editor,

Complete blood count (CBC) is among the most frequently ordered diagnostic tests in medicine due to its features such as being inexpensive, easily accessible and applicable, and fast results. In recent years, many studies have been conducted in the field of psychiatry, as in all other medical fields, dealing with the relationship of CBC with psychiatric disorders or situations. The investigation of the relationship between CBC parameters and different stages of suicide is based on recent years.¹

The studies show that history of suicide attempts is associated with increased neutrophil to lymphocyte ratio (NLR). In addition, it is suggested that the NLR could be a valuable, repeatable, easily accessible, and cost-effective strategy in revealing the risk of suicide. On the other hand, some studies did not detect a difference between NLR and severity of depression symptoms.² A study compared the patient groups diagnosed with major depressive disorder (MDD) with and without a history of suicide attempt with a healthy control group and reported that the red blood cell value of MDD patients with a history of suicide attempt was lower than those of MDD patients without a history of suicide attempt, while mean corpuscular hemoglobin and platelet count values were found to be higher.³ On the other hand, while monocyte to lymphocyte ratio, mean platelet volume, monocyte count, and red cell distribution width values of patients with a history of suicide attempt were lower than healthy controls, basophil count, and eosinophil count were found to be higher. Apart from this, the relationship between mean platelet volume and various CBC parameters with suicide was investigated in different studies. These studies demonstrated that white blood cell, mean platelet volume, NLR, monocyte to lymphocyte ratio, and platelet to lymphocyte ratio values were significantly higher in individuals who attempted suicide compared to healthy controls, and the lymphocyte count value was lower. Some studies investigating the relationship between suicide and CBC have focused on the effect of suicide violence on CBC. It is found that NLR and mean platelet volume were significantly

higher in violent suicide attempts than non-violent suicide attempts and healthy controls.¹ Another study reported that neutrophil count, percentage of neutrophil, and NLR were significantly higher in violent suicide attempt than non-violent suicide attempt and healthy controls.² A study found that violent suicide attempt was associated with an increased neutrophil count, mean platelet volume, platelet to lymphocyte ratio, NLR values and decreased lymphocyte count values compared to a non-violent suicide attempt and healthy controls.⁴ In contrast to the studies mentioned above, no significant relationship was found between suicide and some CBC parameters in one study.⁵ This study compared the NLR, mean platelet volume, platelet to lymphocyte ratio, platelet count, and white blood cell levels of patients who were admitted to the emergency department with SA and those who were followed up in a psychiatry outpatient clinic with a diagnosis of MDD and found no significant difference.⁵

In conclusion, all of the studies investigating the relationship between CBC and suicide have been published over four years. In some of the studies, MDD patients with and without a history of suicide attempts were compared among themselves and with healthy control groups. In some studies, suicide attempts were divided into violent and non-violent and compared among themselves and with healthy control groups. The majority of studies focused on white blood cells and lymphocyte-related ratios, based on the relationship between suicide and inflammatory processes. NLR has been associated with depressive symptoms, MDD with a history of suicide attempts, and violent suicide attempts. In this sense, the NLR has become an important candidate parameter for use in predicting suicide attempts. However, what we know about NLR is not at the desired level for making clinical decisions. The major limitation of the studies in this field is that they are retrospective and cross-sectional. The case of suicide has been investigated in different psychiatric disorders, which makes it difficult to compare studies among themselves. Most of the blood analyses were performed following the suicide attempt. Although difficult, longitudinal studies and blood analyses taken before suicide attempts are required.

Ethical considerations

Ethical approval was not required for this research article and any discussion is fully anonymized.

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Conflict of interest

The authors have no conflict of interest to declare.

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M.H. Orum

Elazig Mental Health and Diseases Hospital, Psychiatry Outpatient Clinic, Elazığ, 23200, Turkey

E-mail address: mhorum@hotmail.com

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