

Relationship Between Neutrophil-To-Lymphocyte Ratio and Stress in Multiple Sclerosis Patients

Meshal Mohammed Alfallaj¹, Fawaz Al-Hussain², Meshal Mohammed Alfallaj¹, Abdulaziz Nasser Alahmari¹, Abdullah Nasser Almazayad¹, Talal Khalid Alsaeed¹, Abdulmjeed Abdulaziz Abdurrahman¹, Ghulam Murtaza², Shahid Bashir¹

¹College of Medicine - Department of Physiology - King Saud University, Riyadh, Saudi Arabia; ²Department of Neurology - King Saud University, Riyadh, Saudi Arabia

Background: Multiple sclerosis (MS), a disease of autoimmunity and inflammation, is characterized by deterioration of the myelin sheath that protects the nerve fibers. The high levels of neutrophils in serum may be related to the chronic inflammation and caused by other triggers such as infections that have been associated with relapses in MS.

Methods: It was a retrospective study on 60 patients with MS and 60 age- and sex-matched healthy controls. Patients with MS were evaluated for their eligibility for inclusion as complete clinical data containing laboratory records, complete blood count (CBC), and disease activity score (DAS) score. Matched healthy subjects without any risk factors or chronic diseases were included as con-trols. We measured DAS score, neutrophil-to-lymphocyte ratio (NLR), calcium, phosphate, magnesium, chloride, alkaline phos-phatase, and albumin serum levels in patients with MS and in healthy controls.

Results: The mean age was not significantly different in both case and control groups. The case and control groups were simi-lar in terms of sex; however, the majority of the MS group was female. The NLR values of patients with MS were significantly higher than those of the healthy controls ($p < 0.001$). The NLR values were also significantly ($p < 0.001$) correlated with stress score.

Conclusion: MS is a disease of axonal degeneration and demy-elinatation leading to unalterable damage to the central nervous system (CNS). The transfer of autoreactive T cells from the blood to the CNS is the key moment in the pathogenesis of MS, which starts a whole flow of imbalances in various chronic inflamma-tory diseases. NLR could be considered as a quick, cheap, easily measurable, and inflammatory marker for assessment of inflam-mation in patients with MS. The role of NLR in MS must be explored further.