

# **Neutrophil-to-Lymphocyte Ratio and Platelet-To-Lymphocyte Ratio Correlate with C-Reactive Protein and with the Erythrocyte Sedimentation Rate in RA Patients**

Vildana Fatić<sup>1</sup>, Nermina Babić<sup>2</sup>, Šekib Sokolović<sup>3</sup>, Orhan Lepara<sup>4</sup>, Amela Dervišević<sup>5</sup>, Nesina Avdagić<sup>6</sup>, Edina Drpljanin<sup>7</sup>

<sup>1,2,4,5,6</sup>Katedra za fiziologiju čovjeka, Medicinski fakultet Sarajevo

<sup>3</sup>Klinika za kardiologiju i reumatizam UKCS

<sup>7</sup>Medicinski fakultet Sarajevo

Bosnia & Herzegovina

E-mails: [vildanafatic31@gmail.com](mailto:vildanafatic31@gmail.com), [nermina.babic@mf.unsa.ba](mailto:nermina.babic@mf.unsa.ba), [sekib@bih.net.ba](mailto:sekib@bih.net.ba), [orhan.lepara@mf.unsa.ba](mailto:orhan.lepara@mf.unsa.ba), [amela.dervisevic@mf.unsa.ba](mailto:amela.dervisevic@mf.unsa.ba), [nesina.avdagic@mf.unsa.ba](mailto:nesina.avdagic@mf.unsa.ba), [edinadrljanin14@gmail.com](mailto:edinadrljanin14@gmail.com)

**Abstract:** Background and Aim: Rheumatoid arthritis (RA) is a systemic chronic inflammatory disease that causes progressive disability, complications, early death and further socio-economic costs. Some studies show that the neutrophil-to-lymphocyte ratio (NLR) and platelet-to-lymphocyte ratio (PLR) can be used as a marker of systemic inflammation. The aim of the study was to evaluate the relationship of NLR and PLR with C-reactive protein (CRP) and with the erythrocyte sedimentation rate (ESR) in RA patients.

Methods: This cross- sectional study was conducted at the Department of Cardiology and Rheumatism, University Clinical Center Sarajevo (UKCS) and included 83 RA patients (68 women and 55 men), aged 33-81 years. This group was divided into two subgroups: RA I/II- patients with RA grade I/II (n = 43) and RA III/IV- patients with RA grade III /IV (n = 40). The control group included 40 healthy subjects of both sexes.

Results: The CRP and ESR values were significantly higher in both groups of patients than in control group. The highest values were in RA III/IV group which were significantly different than in RA I/II group. NLR and PLR in both groups of patients were significantly higher than in control subjects ( $p<0.0005$ ;  $p=0.004$ ). NLR was the highest in RA I/II group while PLR was the highest in RA III/IV group. No significant differences were observed between groups of patients. A correlations were observed between: NLR and CRP ( $\rho=0.273$ ,  $p=0.023$ ), NLR and ESR ( $\rho=0.246$ ,  $p=0.037$ ), PLR and CRP ( $\rho=0.444$ ,  $p<0.0005$ ), PLR and ESR ( $\rho=0.313$ ,  $p=0.007$ ) in RA patients.

Conclusion: This study showed that NLR and PLR positive correlate with CRP and ESR in RA patients. PLR values increases with disease stage of RA.

**Key words:** rheumatoid arthritis, neutrophil-to-lymphocyte ratio; platelet-to-lymphocyte ratio, erythrocyte sedimentation rate, C-reactive protein