

Clinical Investigation of Lymphocyte DNA Damage in COVID-19 Patients

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Abstract

This prospective cross-sectional study, aimed to evaluate lymphocyte DNA damage in Coronavirus disease (COVID-19) patients. In this study, 50 COVID-19 positive patients attending Erzurum City Hospital Internal Medicine Outpatient Clinic and 42 control group patients were included. DNA damages were detected in living cells by lymphocyte isolation in 50 COVID-19 positive patients using the comet assay method. DNA tail/head (olive) moments were evaluated and compared. White blood cell (WBC), red blood cell (RBC), hemoglobin (HGB), neutrophil (NEU), lymphocyte (LYM), eosinophil (EO), monocyte (MONO), basophil (BASO), platelet (PLT), neutrophil/lymphocyte ratio (NLR). The RBC, lymphocyte, eosinophil, and monocyte means were significantly higher in the control group ($p < 0.05$). Whereas HGB and neutrophile means were significantly higher in the study group ($p < 0.05$). There were significant negative correlations between COVID-19 and RBC ($r = -0.863$), LYM ($r = -0.542$), EO ($r = -0.686$), and MONO ($r = -0.385$). Meanwhile, there were significant positive correlations between COVID-19 and HGB ($r = 0.863$), NEU ($r = 0.307$), tail moment ($r = 0.598$), and olive moment ($r = 0.582$). Both the tail and olive moment mean differences were significantly higher in the study group with higher ranges ($p < 0.05$). COVID-19 infection statistically significant is increasing both the tail and olive damage percentage in patients, causing DNA damage. Lastly, the NLR rate was associated with the presence and progression of COVID-19.

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