

HIGH LEVEL PRODUCTION OF SARS-COV-2 ANTIBODIES INCREASED THE RATE OF ANTI-NUCLEAR AUTOANTIBODIES

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November 23, 2024

Abstract

Background: In SARS-CoV-2 infection, in addition to the production of virus-specific antibodies, autoantibodies can also be produced, which attack self-structures and worsen the prognosis. We hypothesized that overproduction of virus-specific antibodies may also trigger autoantibody production. **Methods:** To test this hypothesis, the antinuclear antibody (ANA) positivity rate was examined in samples with high and low (i.e., negative) anti-SARS-CoV-2 antibody levels. A quantitative ELISA test kit with a dynamic measurement range of 1-475 RU/mL was used to determine Sars-CoV-2 antibodies. In the high SARS-CoV-2 antibody criterion, it was required to have the last quarter antibody level (>235 RU/mL) in the ELISA calibration curve. For low antibody levels, the requirement was <15 RU/mL. Anti-SARS-CoV-2 antibody levels of 1222 samples were examined and 62 (33 men, 29 women) samples were determined to have high antibodies (high group; HG). Among the samples with low antibody levels, 62 gender-matched samples were selected by randomization (low group; LG). ANA positivity was analyzed with 3 different commercial ELISA test kits (anti-dsDNA, anti-ENA, anti-Hep-2 nucleus; Y immunoTEK, Turkey). Total IgG levels were also measured to evaluate the difference in total antibody levels. **Results:** Anti-SARS-CoV-2 antibody levels were 413 ± 72 RU/mL and 3.8 ± 1.4 RU/mL for HG and LG, respectively ($p < 0.001$). The ANA positivity rate was found to be significantly higher in HG than in LG (anti-dsDNA 9/62, 14.5% - 19/62, 30.7%; anti-ENA 10/62, 16.1% - 22/62, 35.5%; anti-Hep-2 nucleus 8/62, 12.9% - 20/62, 32.3% respectively). There was no difference between total IgG levels (HG; 11.1 ± 3.0 and LG; 10.6 ± 3.4 mg/mL) ($p > 0.05$). **Conclusions:** As a result, it was determined that high levels of SARS-CoV-2 antibody production were associated with the formation of ANA. This suggests that SARS-CoV-2 antibody and ANA production have similar mechanisms or pathways.