

The prevalence of IgG anti-ACE2 antibody in patients with COVID-19 and its suggestive role in the progression of COVID-19

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Abstract

Angiotensin converting enzyme-2 (ACE2), a key component in renin-angiotensin system (RAS) has been identified as the functional receptor for mediating the entry into the cell of SARS-CoV-2. The correlation between anti-ACE2 antibodies and COVID-19 outcome is less well-defined. Herein, serum sample were collected from 134 inpatients, 22 outpatients, 40 convalescent and 12 healthy individuals, with real-time PCR-confirmed SARS-COV-2 infections. The anti-ACE2 antibodies were tested by ELASA and anti-SARS-COV-2 antibodies were analyzed by chemiluminescent immunoassay. We found that patients with COVID-19 show a high prevalence of autoantibodies against ACE2 and exhibit marked increases level compared to healthy control. The highest level of anti-ACE2 was observed in death, male, and longer time of admission group. Thus, significant negative association between serum anti-ACE2 antibodies levels and anti-SARS-COV-2 in different severity group was observed. We conclude that patients with a history of SARS-CoV-2 infection had a high prevalence of Anti-ACE2 antibodies. Its negative correlation with anti-SARS-COV-2 antibodies may lead to pro-inflammatory responses and weaken the protective power of humoral immunity by enhancing RAS pro-inflammatory axis.

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