LETTER TO THE EDITOR

Potential Effect of Previous Human Coronavirus NL63 Infection on the Rate of Infection and the Clinical Course of Coronavirus Disease 2019

To THE EDITOR—In a study of neutralizing antibodies for human coronavirus (HCoV) NL63 by Henss et al [1], the severity of coronavirus disease 2019 (COVID-19) appeared to be correlated with low HCoV-NL63 neutralizing activity, and patients with severe COVID-19 had no high-level NL63-neutralizing antibodies. However, some severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)–naive individuals analyzed in that study had high NL63-neutralizing antibodies, so the authors considered it worthwhile to explore the hypothesis that preexisting immunity to NL63 or other common cold coronaviruses might reduce the risk of severe disease.

To examine this hypothesis, we tested for the presence of HCoV-NL63 antibodies, using the human anti-HCoV-NL63 immunoglobulin G enzyme-linked immunosorbent assay kit produced by Creative Diagnostics. We tested 4 groups: individuals who were negative for SARS-CoV-2 (control group), those who tested negative even though they took care of family members with COVID-19 (high-risk contacts), patients with mild COVID-19, and patients with severe COVID-19.

In the control group (negative for SARS-CoV-2), 3 of 42 individuals tested were positive for HCoV-NL63 antibodies. This is consistent with the presumed positivity in the general population. In high-risk contacts (individuals who took care of family members with COVID-19 but did not test positive for SARS-CoV-2), 6 of 8 tested positive for HCoV-NL63 antibodies. In the patients with mild COVID-19 (score 1–3; no oxygen needed), 11 of 13 tested positive, while none of the 20 patients with severe COVID-19 (score 4–6; treated with supplemental oxygen) had serum positive for HCoV-NL63 antibodies. The scoring system is slightly modified from the recommendation made by the Clinical Characterisation and Management Working Group of the WHO Research and Development Blueprint Programme.

These results strengthen the hypothesis that positive results for HCoV-NL63 antibodies indicate immunity from previous infection with HCoV-NL63, which may both protect individuals from infection with SARS-CoV-2 and protect infected individuals from progression to severe disease. Because the number of individuals in our study was small, we suggest that this finding should be confirmed in larger studies. One possible follow-up study would involve large numbers of individuals at high risk of infection.

Notes

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Reference

1. Henss L, Scholz T, von Rhein C, et al. Analysis of humoral immune responses in patients with severe acute respiratory syndrome coronavirus 2 infection. J Infect Dis **2021**; 223:56–61.