Letters

Editor's Note

Protection Because of Prior SARS-CoV-2 Infection

How much protection against future infections does prior infection with SARS-CoV-2 infection provide? This is an important question for advising individual patients, as well as for projecting future outbreaks of SARS-CoV-2.

In this issue of *JAMA Internal Medicine*, Vitale and colleagues[1] use the results of diagnostic reverse-transcriptase–polymerase chain reaction tests in Lombardy, Italy, to compare the incidence of SARS-CoV-2 infection among persons with prior SARS-CoV-2 infection with persons who tested negative for the virus.

The differences were dramatic. The incidence density per 100 000 person days was 1.0 (95%, CI 0.5-1.5) for persons with a history of infection and 15.1 (95% CI, 14.5-15.7) for persons without a history of infection. These results complement those of Harvey and colleagues[2] from the US, who found that patients with a positive diagnostic nucleic acid amplification test result for antibodies to SARS-CoV-2 were much less likely to develop SARS-CoV-2 infection at 90 days than persons without antibodies.

Before assuming that people with documented SARS-CoV-2 infections, whether by polymerase chain reaction diagnostic testing or by presence of antibodies, are protected against future infections, there are 2 caveats. First, we do not know how long natural immunity lasts. Second, we do not know if natural immunity to the wild-type virus is equally protective for SARS-CoV-2 variants (viruses with genetic variations). As has been indicated by Spellberg and colleagues,[3] achieving herd immunity through natural infection is a long and painful process, and, historically, the only human disease to be eradicated, smallpox, was eradicated through vaccination, not natural infection.

Because it is likely that immunization plus history of natural infection is better protection than natural infection alone, all persons should be encouraged to get vaccinated even if they have been previously infected with SARS-CoV-2. Although unproven, it is possible that vaccination provides broader immunity to variants than natural infection. And because we do not know how long vaccine protection will last or whether there will be variants that escape protection from vaccination, we may need immunization boosters and or reformulated vaccinations in the future.

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