## IMMUNITY FOLLOWING INFECTION LASTS UP TO 19 MONTHS

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

Protective: People with previous infection are protected against severe4 disease.

A retrospective study undertaken in Sweden has once again found irrefutable evidence in support of vaccination even among people who have been previously infected. The study also found that people who have been infected and subsequently vaccinated with one or two doses of a vaccine, which is called hybrid immunity, had far greater protection from infection and hospitalisation. At the same time, natural immunity from previous infection alone without additional protection from vaccination was associated with low risk of hospitalisation for up to 19 months. The results were published on March 31 in the journal *The Lancet Infectious Diseases*.

The study was undertaken between March 20, 2020 and October 4, 2021 for documented infections by the virus and between March 30, 2020 and September 5, 2021 for hospitalisation. The study looked at three cohorts — people who have been infected but not vaccinated (20,39,106), people who have been infected and received one dose of the vaccine (29,62,318), and people with previous infection and have been fully vaccinated with two doses (35,67,810).

The study found that three months after infection, natural immunity was associated with 95% lower risk of reinfection and 87% lower risk of COVID-19 hospitalisation compared with people who have not been previously infected and hence have no immunity. The lower risk from reinfection and hospitalisation in people with previous infection compared with infection-naïve people lasted for up to 19 months.

"Natural immunity was associated with increased risk during the first three months of follow-up, but from three months onwards, there was an associated 87% lower risk of COVID-19 hospitalisation in people with natural immunity than in people with no immunity for up to 19 months of follow-up. The associations were weaker with increasing age," they write.

Several studies have already shown reduced risk of reinfection and hospitalisation in people who have been previously infected. A meta-analysis of 15 cohort studies also found that immunity acquired through natural infection was associated with 87% reduced risk of reinfection for up to one year.

In the second cohort that was previously infected and had received one dose of the vaccine, the study found only 639 people had a case of reinfection compared with 1,662 people with just natural immunity. The hybrid immunity was thus associated with a 58% reduced risk of reinfection, which was reduced to 45% from two months onwards. The associations were weaker in older individuals and in people who had comorbidities.

In people with hybrid immunity with one dose of the vaccine, there were just eight hospitalisations compared with 113 in people with only natural immunity from previous infection. Thus, hybrid immunity from one dose provided an additional 94% lower risk of COVID-19 hospitalisation compared with people with just natural immunity. The association of lower risk of reinfection in people with hybrid immunity from one dose was seen for up to two months and a gradual reduction till nine months.

In the third cohort that was previously infected people who had received two doses of the

vaccine, the hybrid immunity was associated with a 69% lower risk of reinfection than in people who have only natural immunity during the first two months of follow-up; this reduced to 56% after two months but no further reduction in protection was seen up to nine months. Like in other cohorts, the association was weaker in older people and in those who had comorbidities. Hybrid immunity after two doses was also associated with an additional 90% lower risk of hospitalisation.

"The number of individuals with natural immunity needed to be double vaccinated to prevent one reinfection during follow-up was 767," they write.

Coming to the significance of the study, the authors note that in many countries, people with previous infection have been required to be fully vaccinated and even take a booster shot. This was mainly because the level of protection and duration of protection offered by natural immunity was not known beyond one year.

"Our study extends the body of evidence with up to 20 months of follow-up and more than 1,30,000 documented SARS-CoV-2 infections, and our results showed that individuals with natural immunity had an associated 95% protection against SARS-CoV-2 reinfection during follow-up (from three months after initial infection until 20 months), with no signs of waning," they write. "These results indicate that natural immunity might be better maintained than immunity induced by vaccination only, as suggested also by preliminary data from an Israeli study."

Another significant outcome of this study was that people who were previously infected had an increased risk of hospitalisation during the first three months after infection. But once past this stage, the natural immunity in those previously infected was associated with 87% protection against hospitalisation. "The associated level of protection remained high (78%) even from nine up to 19 months of follow-up, altogether indicating long-lasting protection, including against severe disease, from natural immunity," they write.

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