Reinfection possible as immunity wanes over time: Experts

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People who have recovered from Covid-19 can get reinfected as the immunity they have gained against the virus wanes over time, experts say.

But how this pans out with each person is difficult to predict as antibody levels and their longevity vary from person to person, they told The Straits Times yesterday in response to the first case of Covid-19 reinfection detected in Singapore.

Professor Teo Yik Ying, dean of the National University of Singapore’s Saw Swee Hock School of Public Health, said people who have been infected typically mount a neutralising antibody response for a period of time that protects against reinfection.

Neutralising antibodies are so-called because they bind to specific, important sites of the virus and prevent it from infecting a human.

However, this immune response has been shown to wane with time, and the previous reports of reinfection in South Korea, Hong Kong and other parts of the world typically happen after three months of the first infection, noted Prof Teo.

On Saturday, Singapore reported its first known case of reinfection, a 28-year-old male Bangladeshi national who was diagnosed for the first time on April 12 last year. He had consistently tested negative for the infection since last June. But on Jan 26, he was isolated after he came back positive.

Numerous repeat tests were also positive.

Professor Wang Linda from Duke-NUS Medical School, who developed the neutralising antibody test kit (Pass), which was the first of its kind to obtain approval from the United States Food and Drug Administration, said his team had found that infected individuals can register very different neutralising antibody responses.

Antibody longevity also varies greatly, he added. “So it is possible to have prior infection with no or very low neutralising antibodies,” he said.

Dr Shawn Vasoo, clinical director of the National Centre for Infectious Diseases, said data has shown that immunity from natural infection can last at least six months, perhaps longer.

While this immunity is conferred by the neutralising antibodies the body makes after infection, they are not one element of the human immune system, he said.

Another element, cellular immunity, arises from special immune cells called lymphocytes. These cells recognise Sars-CoV-2, as the virus causing Covid-19 is called, and prevent it from reinfecting cells.

Dr Vasoo said people who are immune-suppressed — such as patients taking medications which depress their immune system — or people who had only a mild first infection may have a shorter-lasting immunity.

But experts said knowledge about the coronavirus, and how the immune system responds to it, is evolving. This contrasts had been unknown before it first surfaced in China over a year ago.

Professor Dale Fisher from the department of medicine at the NUS Yong Loo Lin School of Medicine said: “We don’t know how completely and how long the immunity after infection lasts. We have seen dozens of proven reinfections globally and many more suspected, but it remains very rare. We do not know if it will become more common at time progresses.”

Associate Professor Alex Cook from the Saw Swee Hock School of Public Health noted as well that the presence of antibodies does not guarantee the body will fight off an infection.

People should follow the current safe management measures to prevent reinfections, the experts advised.

“People who have been infected may wish to continue to take the regular precautions such as frequent hand washing that the rest of us do,” said Prof Cook, who is the vice-dean of research and domain leader for biostatistics and modelling at the school.

However, the risk of infection for the public is still low because of the country’s safe management measures and low community transmission, he said.

Prof Fisher, who is also a senior consultant at the division of infectious diseases at the National University Hospital, and chair of the World Health Organisation’s Global Outbreak Alert and Response Network, said: “Until we have more answers, people should continue to follow the same rules of distancing, mask wearing and not being a part of large gatherings.”

“It’s another reason why we have to come up with a strategy to contain Covid-19 in Singapore, which primarily involves prevention by safe distancing, mask wearing, vaccination, and early detection and isolation of the virus,” he added.

“Without a vaccine, the only way to control it is to have everyone be immune,” he concluded.

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