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Covid-19: Past infection may not protect against future variants, researcher warns

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Past infection with covid-19 does not necessarily confer protection against future infection, especially when it comes to the delta and omicron variants, researchers have warned.

Wendy Barclay, head of infectious disease at Imperial College London, told an event organised by the Zoe study group¹ on 3 February, “Each variant is different from the starting virus, but it’s not necessarily a linear difference. If you can picture in three dimensional space the original Wuhan one sitting in the middle—some of the other variants have sort of gone out from Wuhan but in different directions. The two that are most different from each other are delta and omicron.”

She said people who think their past infection will give them good protection against future variants may be mistaken, and that this is a powerful reason to get vaccinated. “You’re actually better off being vaccinated, even if you get infected on top of that vaccine, as we can see that it broadens out the immune response and gives you potentially better protection against all the other variants that are going to come a little later,” Barclay said.

BA.2

Regarding the omicron variant sub-lineage BA.2, which is now spreading in the UK with more than 1000 confirmed cases reported in England as of 31 January 2022,² Barclay explained that there are three versions of omicron—BA.1 (the version of omicron that has spread widely around the world), BA.2, and BA.3.

Early data suggested that BA.2 has a slight advantage over BA.1, despite there not seeming to be a huge difference between them, said Barclay. She said both have a “double whammy ability” with a lot of changes in the spike protein, meaning that the antibodies the population has made against vaccines or previous infection are not able to “see the virus very well.” BA.2 may also have some other attributes that make it better at transmitting, which is how it is starting to displace BA.1 in countries such as Denmark.

She suggested that as the “number of slight changes in BA.2 is somewhat less,” BA.1 may have accumulated so many changes that it has “compromised to a degree its own fitness, whereas BA.2 has struck a better balance with the escape from antibodies, while maintaining good transmissibility.”

The UK Health Security Agency has warned that BA.2 has an “increased growth rate” compared with BA.1, and that those with BA.2 are more likely to infect household contacts.

Variant vaccines

Looking at the future of the pandemic and protection against SARS-CoV-2, Barclay discussed the importance of developing vaccines that can protect against many different variants. She said that while many vaccine manufacturers, especially those using mRNA technology, have marketed themselves on the idea that their platform can be rapidly adapted to fit new variants, there is little evidence that this is happening.

“I know that they’ve developed vaccines against beta, but beta has been and gone and we’re now on omicron. I don’t think we’re going to have an omicron vaccine, for the UK anyway, until omicron has been and gone,” Barclay said.

She has suggested that multivalent vaccines designed to work against several variants at once may be the future. Barclay noted, however, that this was a big challenge, and one that has still not been overcome for the likes of influenza. “There are some great ideas that are being tested at the moment, but in the short term I don’t see that happening.”

- 1 The Omicron variant: what does it mean for the future of covid? <https://covid.joinzoe.com/webinar/omicron-variant-dominant>.
- 2 Mahase E. Omicron sub-lineage BA.2 may have “substantial growth advantage,” UKHSA reports. *BMJ* 2022;376:o263. doi: 10.1136/bmj.o263 pmid: 35101887

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