Pre-exposure prophylaxis with tixagevimab-cilgavimab protects blood cancer patients against COVID

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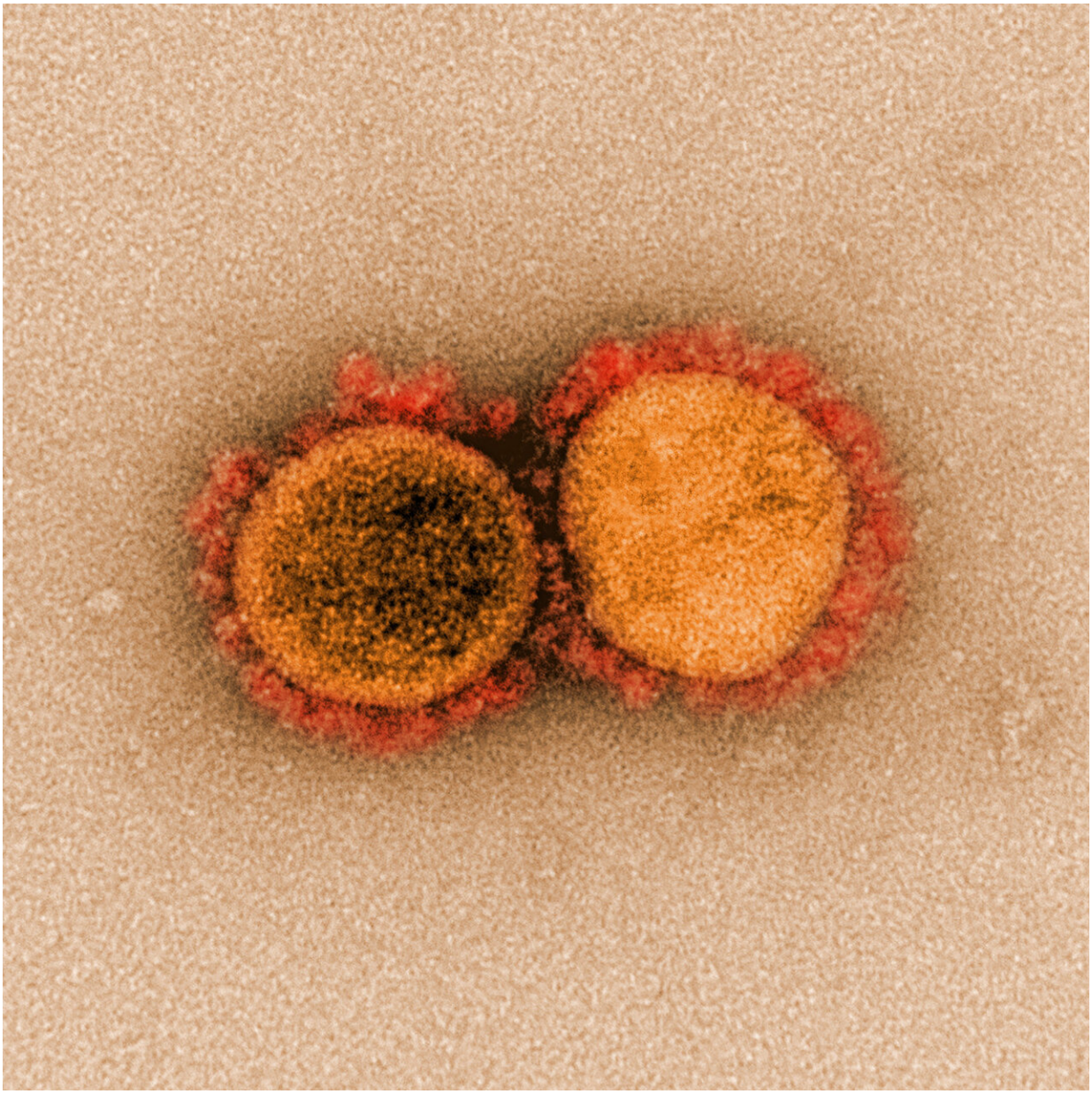

Transmission electron micrograph of SARS-CoV-2 virus particles, isolated from a patient. Image captured and color-enhanced at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Credit: National Institute of Allergy and Infectious Diseases, NIH

MUSC Hollings Cancer Center oncologists found that using a combination monoclonal antibody (tixagevimab-cilgavimab) against the SARS-CoV-2 spike protein in patients with blood cancers prevented moderate and severe COVID cases. This finding was published as a letter in November in the journal *Blood*.

Although the prevalence of COVID-19 has diminished, the SARS-CoV-2 virus is an ongoing reality and problem for cancer patients. Blood cancer patients must be especially cautious to avoid infection since they have compromised immune systems.

Hollings oncologist Brian Hess, M.D., senior author of the publication, explained the risks. "Patients with B-cell malignancies such as leukemia, lymphoma or myeloma have a very high risk of contracting COVID-19 and getting severe complications due to their compromised immune systems related to the treatments they are receiving and the disease process itself."

Vaccinations are effective against infections only if a person's immune system can respond to the vaccine by producing enough antibodies. Patients with B-cell malignancies cannot produce antibodies in response to vaccines due to B-cell-depleting therapies and poor immune function.

Tixagevimab-cilgavimab (AZD442/Evusheld) is a monoclonal antibody

that stops the SARS-CoV-2 spike protein from attaching to the surface of cells, preventing the virus from entering cells.

"Before the FDA's emergency use authorization (EUA) of tixagevimab-cilgavimab last year, the risk of a myeloma patient dying from COVID in the first 30 days of infection was 25%. Every 1 in 4 patients died. With the antibody, we are seeing no deaths in our blood cancer patients," said Hamza Hashmi, M.D., hematologist-oncologist at MUSC Hollings Cancer Center and co-author of this study.

The monoclonal antibody had excellent initial clinical trial results, which led to the Food and Drug Administration's EUA, but fewer than 10% of the trial participants had cancer or were actively receiving immunosuppressive therapy. This study was prompted by Hollings oncologists when they saw that some cancer patients who received tixagevimab-cilgavimab developed COVID infection.

The researchers looked at 251 patients with B-cell malignancies who were actively undergoing cancer treatment and received at least one dose of tixagevimab-cilgavimab between January and August of 2022. Their goal was to look at incidence and the risk factors that led to breakthrough COVID infections after receiving the preventive antibody.

"We saw that breakthrough infection occurred in about 10% of our patients, but those infections were mild. Although some patients were hospitalized as a precaution, none required oxygen or time in the ICU. Importantly, none of the patients died," said Hashmi.

Since the antibody provides protection against the SARS-CoV-2 virus but does not entirely prevent infection, Hashmi said that it is important for patients and caregivers to practice other safety measures, such as social distancing, hand washing and wearing a face mask.

The COVID monoclonal antibody is effective for six months, after which, immunocompromised patients must get another dose. Patients should talk with their health care teams to ensure that they get the antibody at the interval that fits best with their cancer treatment plans.

"The breakthrough infections that we saw may have occurred since most of the patients in this study received the antibody when Omicron was the main variant. We know that the variations in the Omicron variant of the SARS-CoV-2 virus led to more breakthrough cases in fully vaccinated individuals as well," said Hess.

There is the possibility that the antibody will not be as effective against any new COVID variants. "This is something that the medical community will have to watch. We can only develop antibodies based on current virus variations, since we cannot completely predict how any virus will mutate. Fortunately, we are a very driven and passionate team of providers, so I anticipate many more physician-led studies like this so we can bring the best possible care to the patients," said Hashmi.

More information: James A Davis et al, Efficacy of tixagevimab-cilgavimab in preventing SARS-CoV-2 for patients with B-cell malignancies, *Blood* (2022). DOI: 10.1182/blood.2022018283

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