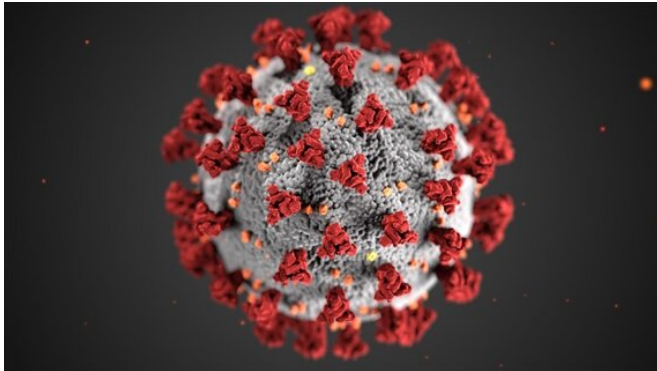


Study sounds note of caution on effectiveness of COVID-19 vaccines for patients with lymphoid malignancies

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Credit: Alissa Eckert, MSMI; Dan Higgins, MAMS

Patients with lymphoma or other lymphoid cancers should continue to take steps to protect themselves from COVID-19 even if they have been vaccinated against the disease, a new study led by investigators at Dana-Farber Cancer Institute reports. The study, published online by the journal *Blood Advances*, found that patients who had received anti-CD20 antibody therapy within the previous 12 months did not develop protective antibodies for COVID-19 after being vaccinated.

"Our findings suggest that patients with lymphoid cancers who have been vaccinated for COVID-19 should not assume they have immunity against the disease," said Jennifer Crombie, MD, of Dana-Farber, the co-first author of the study. "Patients should continue to be vigilant against becoming infected."

The new paper reports on 23 patients with a lymphoid malignancy such as lymphoma or chronic lymphocytic [leukemia](#) (CLL) who planned to receive the Moderna or Pfizer/BioNTech COVID-19 vaccine. Both vaccines use messenger RNA, or

mRNA, to trigger an immune response to the coronavirus, protecting recipients from severe symptoms of COVID-19.

Seventeen of the patients who participated in the study—or 74% of the entire group—had received prior treatment for their disease. Fifteen of them had been treated with an anti-CD20 monoclonal antibody therapy such as [rituximab](#), a mainstay treatment for B cell cancers, within the previous 12 months.

Participants had their blood drawn prior to their first dose of the vaccine, at the time of their second dose, and 28 days later. The blood samples were analyzed for antibodies targeting the coronavirus responsible for COVID-19. The results were compared to those of healthy individuals who had their blood drawn at the same intervals.

The analysis showed that none of the patients who had received anti-CD20 antibody therapy within the previous 12 months produced antibodies to the COVID-19 coronavirus by Day 28 following the second dose of the vaccine.

The findings, which carry a message of caution for patients with lymphoid cancers, were not surprising to many researchers, Crombie remarked. The target of anti-CD20 antibodies is immune system B cells, the very cells that are involved in the production of antibodies against the coronavirus and other infectious agents.

The researchers found that the six patients who hadn't been treated for their [cancer](#)—including five with CLL and one with marginal zone lymphoma—did develop anti-coronavirus antibodies by Day 28 post-vaccine. Importantly, though, these patients had significantly lower antibody counts following the first dose of the vaccine than did the

healthy volunteers.

The researchers also found that some patients who had received treatments other than anti-CD20 antibodies did generate an antibody response after vaccination. These included a patient with Hodgkins lymphoma who had completed a course of chemotherapy two months earlier and three patients with CLL who had been treated with drugs known as BTK inhibitors. While these results suggest that patients receiving some treatments may be able to build antibody defenses against COVID-19, the number of such patients in the current study is too small to draw a firm conclusion, Crombie stated.

She adds that the study focused solely on antibody production in this group of patients and did not examine whether the vaccine triggers another component of the immune response: T cells. That will be analyzed in an ongoing study that includes additional patients with lymphoid malignancies.

Until questions about the T cell response and other aspects of the immune response to vaccination are answered, doctors continue to recommend vaccination for patients who have been treated for lymphoid malignancies, Crombie said, in the hope that the vaccines will be found to provide some protection against COVID-19.

More information: Jennifer L. Crombie et al, Activity of mRNA COVID-19 vaccines in patients with lymphoid malignancies, *Blood Advances* (2021). [DOI: 10.1182/bloodadvances.2021005328](https://doi.org/10.1182/bloodadvances.2021005328)

Provided by Dana-Farber Cancer Institute

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