Covid-19: Just a third of blood cancer patients had antibodies against delta variant after two vaccine doses, study finds

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Fully vaccinated people with cancer who have no history of SARS-CoV-2 infection have much lower levels of neutralising antibodies against the delta variant (54%) than against the original SARS-CoV-2 virus (83%), a study has found.  

The Capture study, conducted by the Francis Crick Institute and the Royal Marsden NHS Foundation Trust, analysed the immune responses of 585 patients with different types of cancer after they received two doses of the Pfizer-BioNTech or Oxford-AstraZeneca covid-19 vaccine.

The researchers found that just 31% of infection naive patients with blood cancer developed neutralising antibodies against the delta variant, compared with 62% of patients with solid cancers. The response was 68% overall in patients who had received the Pfizer-BioNTech vaccine and 50% in recipients of the Oxford-AstraZeneca vaccine.

Patients were recruited from May 2020 to June 2021. The median age was 60, and 60% were male. Overall, 31% (181/585) had prior confirmed SARS-CoV-2 infection. Around three quarters of participants (447/585) had a current diagnosis of a solid cancer, and 24% (138/585) had blood cancer.

Rather than looking at covid-19 cases, the researchers used viral neutralisation assay tests to measure the levels of antibodies that block different variants of the virus. The researchers looked at whether patients had levels of neutralising antibodies that were sufficient to block at least 50% of virus infection under laboratory conditions.

Vaccine doses

The paper, published in Nature Cancer, also reported that neutralising antibody responses against the delta variant were higher in patients with previous confirmed covid-19 infection than in those with no previous infection: 57% v 31% in patients with blood cancers, and 86% v 62% in patients with solid cancers.

The researchers said these findings suggested that a third vaccine dose could effectively boost immunity in these vulnerable patients.

The Joint Committee on Vaccination and Immunisation has recommended that immunosuppressed adults—including people with blood cancer and patients with solid cancers receiving immunosuppressive chemotherapy or radiotherapy—should receive a third vaccine dose this autumn. On top of this they could also receive a separate fourth dose as a booster at a later date.

Looking at T cell responses, the research team found that 79% of vaccinated patients with cancer developed a T cell response, with similar reactions seen in patients with solid and blood cancers. Notably, the vaccines were found to induce T cells in patients who did not have a neutralising antibody response.

Samra Turajlic, lead author and a consultant medical oncologist at the Royal Marsden Trust, said, “This study provides evidence that variants of concern pose a greater threat to some patients with cancer, specifically those with blood cancer. Our findings support the argument that these people should be prioritised to receive a third vaccine dose.”

“Reinstating simple public health measures, such as wearing masks in public transport and other indoor spaces, will help to protect and reassure vulnerable patients with cancer, their carers, and healthcare workers. Such measures can also reduce the indirect impact of the pandemic on cancer patients caused by disruption of healthcare services.”
