



The COVID-19 Vaccine Elicits an Immune Response in Patients Being Treated for Cancer

People with cancer are at higher risk for severe symptoms, hospitalizations and death when infected with COVID-19. National oncology societies recommended that all cancer patients get vaccinated to protect themselves against the virus. COVID-19 vaccines have been shown to be safe and effective in clinical trials, but only a small portion of the trial participants were cancer patients. In the BioNTech/Pfizer COVID-19 clinical trial, only 3.7% of the participants were cancer patients, and patients receiving chemotherapy, immunotherapy or systemic steroids were excluded altogether. Thus, information about the efficacy of the COVID-19 vaccine in cancer patients undergoing active treatment is limited.

A study published in May 2021 in the journal *JAMA Oncology* gives reassurance that cancer patients who are receiving active treatment develop an immune response to the BioNTech/Pfizer COVID-19 vaccine. This study, conducted in Israel, included 102 cancer patients and 78 healthy controls. All study participants had received two doses of the BioNTech/Pfizer COVID-19 vaccine, at least 12 days prior to entering the study. Among the 102 cancer patients, 25% of them were being treated for early-stage disease and 75% for metastatic disease. The most common type of cancer among participants was gastrointestinal cancer, and 18 patients had breast cancer. Patients with blood cancers were excluded from the study. All cancer patients were actively receiving systemic treatment, which included either chemotherapy, immunotherapy, targeted therapy, or some combination of these treatments.

Researchers drew blood from the study participants and analyzed it for the presence of antibodies against the COVID-19 spike protein. They found that 100% of healthy controls had appreciable levels of antibody, whereas 90% of cancer patients did. The level of antibodies was lower, on average, in cancer patients compared to healthy controls (1,931 antibody units per milliliter versus 7,160 antibody units per milliliter). Cancer patients treated with a combination of chemotherapy and immunotherapy had the lowest levels of COVID-19 antibodies detected in their blood. Among the 10 cancer patients whose blood tested negative for COVID-19 antibodies, three of them were breast cancer patients. All three were receiving dose-



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dense chemotherapy with adriamycin, cyclophosphamide and paclitaxel (and two also had carboplatin).

These data provide evidence that cancer patients undergoing active treatment are able to produce an immune response when vaccinated against COVID-19. However, the study does not establish how well these patients are actually protected against COVID-19 infection. Therefore, the authors conclude by stating, “until the correlation between antibody levels and protection is established, patients with cancer, like the population at large, should continue wearing masks and practicing social distancing.”

Link to the research article:

<https://jamanetwork.com/journals/jamaoncology/fullarticle/2780584>