

Type of cancer treatment influences coronavirus vaccine response

October 1 2021, by Johannes Angerer

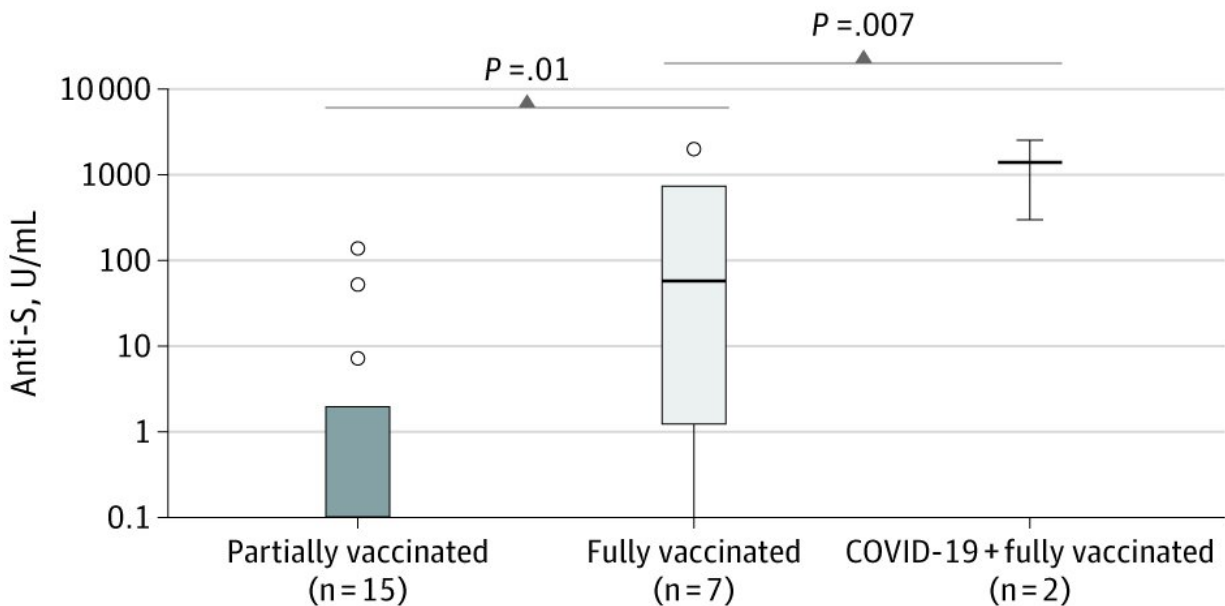


Figure 1. Antispikes (Anti-S) Antibody Levels in Partially and Fully Vaccinated Patients in the Vienna Cohort and Fully Vaccinated Patients With Prior SARS-CoV-2 Infection. Credit: DOI: 10.1001/jamaoncol.2021.5437

Cancer patients are at increased risk of SARS-CoV-2 infection and severe COVID-19 courses. Coronavirus vaccination is generally recommended for cancer patients, but so far little is known about how well they respond to the vaccine. In a study now published in the high-ranking journal *JAMA Oncology* (Impact Factor 32), an interdisciplinary

team of researchers from MedUni Vienna and Vienna General Hospital, led by Matthias Preusser, was able to show that the type of cancer treatment influences the vaccine response: patients undergoing chemotherapy had lower antibody levels than patients undergoing targeted therapy.

The scientists from the Department of Medicine I (Division of Oncology and Division of Infectious Diseases and Tropical Medicine) and the Department of Laboratory Medicine at MedUni Vienna/Vienna General Hospital and the Haemato-Oncology Department of Merano Hospital (South Tyrol/Italy) studied antibody production following coronavirus vaccination in over 600 participants in two patient groups and in a control group made up of healthy hospital staff. Says Preusser: "Patients with solid cancers were included, as were patients with blood cancers."

The main finding is as follows: the form of [cancer](#) treatment influences the vaccine response. Maximilian Mair from the Division of Oncology, lead author of the study (together with Julia Berger), explains: "Patients receiving chemotherapy had lower antibody levels than patients receiving targeted therapy. We found the lowest antibody levels in patients with blood cancers who had received targeted therapy against malignant B cells (note: B cells are antibody-forming cells of the immune system)."

Cancer patients have lower antibody levels

In both healthy individuals and [cancer patients](#), antibody levels were higher after full immunization with the licensed coronavirus vaccines than after only one dose but, even after full vaccination, antibody levels were higher in healthy individuals than in cancer patients. No differences were found between the various vaccines, with most people having received mRNA vaccine.

Preusser explains: "Overall, our data show that most cancer patients develop [antibodies](#) against the SARS-CoV-2 spike protein after vaccination and therefore vaccination is generally recommended, but that vaccine protection is reduced by some cancer treatments." Even after vaccination, general protective measures such as regular COVID testing and hygiene measures therefore appear to be very important, especially for cancer patients receiving ongoing cancer treatment, if optimal protection against COVID-19 is to be achieved." Further studies are now planned to clarify how [vaccine](#) protection can be further improved in cancer patients.

More information: Maximilian J. Mair et al, Humoral Immune Response in Hematooncological Patients and Health Care Workers Who Received SARS-CoV-2 Vaccinations, *JAMA Oncology* (2021). [DOI: 10.1001/jamaoncol.2021.5437](#)

Provided by Medical University of Vienna

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