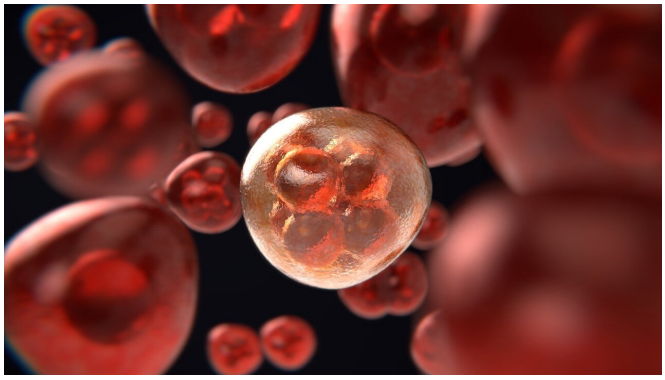
Majority of cancer patients with COVID-19 have similar immune response to people without cancer

22 March 2021



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Most people with cancer who are infected by the novel coronavirus produce antibodies at a rate comparable to the rest of the population—but their ability to do so depends on their type of cancer and the treatments they've received, according to a new study by researchers at Montefiore Health System and Albert Einstein College of Medicine. The findings, published online today in *Nature Cancer*, may lead to better care for cancer patients, who face a heightened risk of dying from COVID-19, and suggests that cancer patients should respond well to COVID-19 vaccines.

"We conducted the study out of our concern that cancer patients who develop COVID-19 may not benefit from the same degree of antibody protection as people without cancer, given that many are immuno-compromised," said Astha Thakkar, M.B.B.S., a Montefiore hematologic oncology fellow and first author of the paper. "Our findings provide assurance that most people with cancer are able to mount an antibody response to the coronavirus that is similar to the general population. People with a history of cancer are likely as protected from reinfection as those without a history of disease and are likely to respond well to vaccines, according to our study."

The retrospective study involved 261 cancer patients, 77% of whom were diagnosed with solid malignancies and 23% with hematologic (blood) malignancies. Their overall rate of seroconversion (production of antibodies in response to infection) was 92%. However, when patients with solid and blood malignancies were compared, patients with blood cancers had a seroconversion rate of only 81.7%—significantly lower than the 94.5% seroconversion rate for patients with solid tumors.

"The treatments commonly given to patients with blood cancers—anti-CD20 antibody therapy, stem-cell transplants, and steroids—are known to suppress the immune system, which may explain the lower rate of antibodies developed in these patients and their increased risk for severe COVID-19 disease," said senior author Balazs Halmos, M.D., M.S., director of the Multidisciplinary Thoracic Oncology Program at Montefiore, professor of medicine at Einstein, and a member of the Albert Einstein Cancer Center (AECC).

"We need to pay special attention to patients with blood cancers and think through proactive strategies to ensure this patient population is appropriately cared for," said Sanjay Goel, M.B.B.S., a medical oncologist at Montefiore, professor of medicine at Einstein, a member of AECC, and a coauthor on the paper. "This study also raises the need for additional research on COVID-19 vaccines and current treatments for people with blood cancer."

In a paper published last year in *Cancer Discovery*, Dr. Halmos and colleagues found that COVID-19 patients with blood cancers had significantly higher

mortality rates compared with patients who had solid tumors. Mortality was more closely related to age and co-morbidities than active cancer therapy.

The study participants were cared for at Montefiore between March 1, 2020 and September 15, 2020 and tested positive for COVID-19 through PCR tests to detect coronavirus or prior COVID-19 exposure through antibody testing, or both. The patients had an average age of 64 and were almost evenly split between men and women. Fifty-six percent of patients (147/261) had symptomatic coronavirus infection, while 44% (114/261) had an asymptomatic infection.

More than 40% of patients were African American; 30% were Hispanic, nearly 15% were Caucasian, 3% were Asian, and 6% belong to other ethnic groups.

The paper is titled "Patterns of seroconversion for SARS-COV2-IgG in Patients with Malignant Disease and association with anti-cancer therapy."

More information: Astha Thakkar et al. Patterns of seroconversion for SARS-CoV-2 IgG in patients with malignant disease and association with anticancer therapy, *Nature Cancer* (2021). DOI: 10.1038/s43018-021-00191-y

Provided by Albert Einstein College of Medicine